MADRAS GOVERNMENT MUSEUM

GUIDE TO THE

BIRD GALLERY

BY

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GOVERNMENT OF MADRAS

1970

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GUIDE TO THE BIRD GALLERY OF THE MADRAS GOVERNMENT MUSEUM

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BY

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INTRODUCTION

The Bird Gallery of the Madras Government Museum is accommodated in a large and spacious, almost square hall on the ground floor of the rear building of the Museum, between the Reptile and the Mammal Galleries. In recent years this Gallery has been modernized by the installation of several built-in, illuminated cases and dioramas, completely replacing the old-fashioned systematic cases, and in which an attempt has been made not only to display representative specimens of almost all the common species of South Indian birds in their proper systematic sequence, but also as far as possible, the habitat of certain selected typical representatives of the various main groups of birds in specially constructed habitat groups; these are the dioramas with painted panoramic backgrounds and modelled foregrounds with accessories such as rocks, sand, vegetation, etc., in which the birds are exhibited as they would appear in their natural surroundings. These dioramas alternate with the ordinary built-in cases which are devoted to the exhibition of the regular systematic series of birds so as to secure a balanced presentation of systematic as well as ecological exhibits. The entire display thus seeks to provide the visitor with a fairly clear picture of not only the fascinating diversity of the avifauna of South India, but also the ecological aspects of some of the typical members of the various main groups of birds represented in India.

This Gallery is still under reorganization and modernization, and pending the completion of the arrangements on

a permanent basis, a part of the collection has been shifted and exhibited in the ground floor of the new Natural History Block to permit the requisite space needed for the reorganization and modernization in the main Gallery, but eventually all the specimens of South Indian birds will be brought back to the main Gallery and displayed in modernized cases in their proper locations as soon as the construction of the entire series of modernized cases is completed and the schemes for the permanent arrangements are finalized.

In the present Guide book, therefore, it has been assumed that all the specimens of exhibited birds are accommodated in the main Gallery, but if by the time this Guide book is published, the visitor does not find (as it is quite likely), certain groups (especially the Passeriformes, comprising the crows, sparrowes and their allies, and the Coraciiformes and other groups comprising the Kingfishers, Woodpeckers, Barbets, Rollers, etc.), in this main Gallery, he will be able to see them in the ground floor of the new Natural History Block which may be reached through a passage leading from the section of the Skeleton Gallery containing skulls and other exhibits relating to the Indian elephant.

Birds have been aptly and concisely defined as "feathered bipeds". They are related to the reptiles, but unlike the reptiles, they are warm-blooded vertebrates, i.e., their temperature remains more or less constant, irrespective of the changes in the surrounding temperature.

One of the most characteristic external features of birds is the presence of feathers which are found in no other group of animals. The feathers of birds may be classified into three groups, namely:—

(1) the normal external feathers known as contour feathers;

(2) the cotton-like down feathers hidden beneath the contour feathers; and

(3) the hair-like filoplumes which are closely adherant to the skin and are noticed only when the other feathers are removed.

Specimens of the first two categories of feathers are exhibited in the show cases containing skeletal and integumentary structures of vertebrates in the Skeleton Gallery.

Birds are pre-eminently adapted to an aerial life and the entire structure and organization of their bodies are admirably modified so as to render them capable of sustained flight. Apart from a few flightless birds such as the Ostrich, Emeu, Cassowary, Penguins, etc., which do not occur in India, the vast majority are flying birds. Many of their bones are hollow and porous in texture rendering them light and buoyant. The forelimbs are modified into the wings which are the main organs of flight. The tail feathers act as a rudder and help in steering the bird's flight. The powerful breast muscles, the prominent keel on the breast bone, which affords suitable attachment for the breast muscles, the light and hollow bones, the almost perfect fusion of the bones of the skull, the numerous air sacs which extend into the hollow of the larger bones and which serve as accessory respiratory organs are all modifications which render the birds capable of flight.

The power of swift and sustained flight has enabled birds not only to enjoy a very wide distribution over the face of the earth, but also to migrate over enormous distances, crossing natural barriers such as oceans, mountains, hills, rivers and streams and find their way to remote and isolated regions. Although many species occurring in India are resident birds confined within Indian limits, yet a large number of migratory species such as swallows, wagtails, some species of wild ducks and related aquatic or marsh birds reach South India from remote northern countries such as Europe, Siberia and Scandinavia during winter when the climate becomes too severe in those northern latitudes. Many species of these migratory birds that are winter visitors to India are also exhibited in this Gallery along with the resident species.

As several excellent books on Indian birds are available at present, some of them (especially those by Salim Ali and Whistler) with good coloured illustrations of many of the common species occurring in India, written by such well

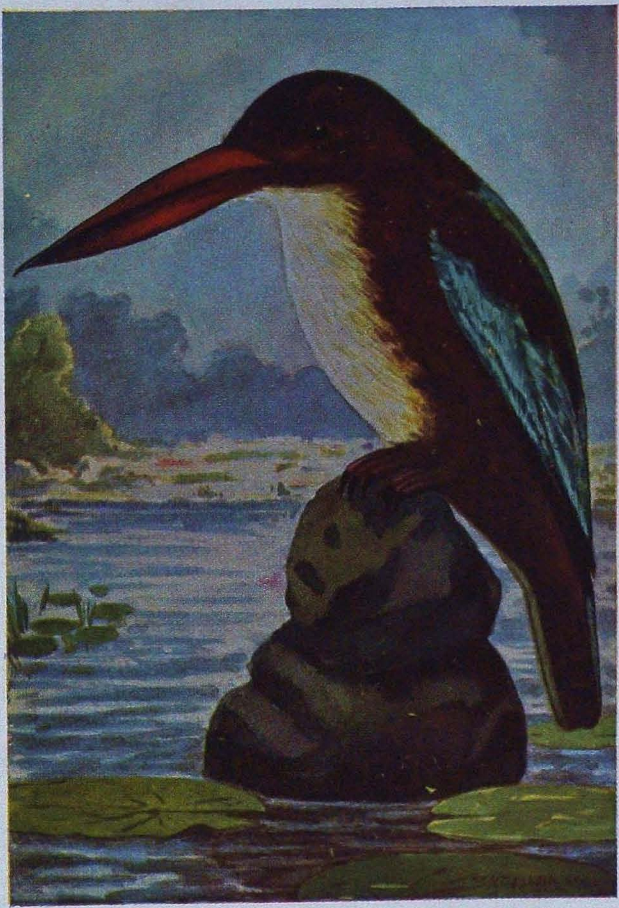
known ornithologists as Salim Ali, Hugh Whistler, Stuart Baker and C. M. Inglis, it is proposed to give only a very brief outline of the habits and other characteristic features of the species of birds exhibited in this Gallery so that the present handbook will serve rather as an introduction to an elementary study of the avifauna of South India, helping the lay visitor to this Gallery to understand and appreciate the richness and variety of our local bird fauna as represented by the exhibited specimens in this Gallery, rather than as a detailed and descriptive treatise on the exhibited species of birds. For more detailed and extensive descriptions, the visitor is advised to refer to the books mentioned above, including the classical volumes by Stuart Baker on birds in the Fauna of British India Series.

The exhibited specimens of birds in this gallery consist mostly of stuffed and mounted birds, depicted as far as possible in their natural, life-like attitudes, labelled and arranged in their systematic order, and wherever possible, also of the eggs and nests of the more common species. Some of these eggs and nests are incorporated in the habitat groups or dioramas, which regularly alternate with the systematic arrangement of birds in this Gallery.

Till recently, the various main groups of birds of Orders were arranged in a sequence which commenced with the crows and other sparrow-like birds (Passeriformes) and ended with the Pelicans (Pelicaniformes) and the Grebes (Podicepediformes) but very recently, based on Dr. Dillon Ripley's latest Synopsis of the Birds of India and Pakistan, the usual sequence has been radically changed, but the new sequence is practically a reversal of the older one and begins with the Grebes and ends with the crows, sparrows and their allies; in other words, the new system begins with the more primitive forms and ends up with the most highly evolved ones. Since the main sequence in which the various groups are dealt with is practically the same, whatever system is followed, and in view of practical difficulties, the more familiar and well established system of classification and arrangement of the Orders which starts with the Passeriformes and ends with the Ducks, Pelicans and Grebes has been followed in the present arrangement of the exhi-

bits in this Gallery. The various Orders of birds will therefore be dealt with in this Guide book accordng to the usual arrangement that has been followed in all well established ornithological systems of classification, and is essentially the same as that adopted in Stuart Baker's Fauna of British India volumes on Birds.

Throughout the course of this Guide book, the latest and currently accepted scientific names of birds as recorded in Dillon Ripley's "A Synopsis of the Birds of India and Pakistan" (1961), have been adopted, but since in most cases the older names are more familiar and better known these older equivalents of the new names, wherever the names have been changed, are listed serially in Appendix I. Vernacular equivalents of English popular names of birds, wherever available, are listed in Appendix II in the alphabetical order.



Frontispiece :

Halcyon smyrnensis fusca :
The Indian White-Breasted Kingfisher.

ORDER PASSERIFORMES

(Sparrows and Sparrow-like perching birds)

This Order is a very large and extensive group comprising an enormous number of varied species such as the crows, sparrows, mynahs, tree-pies, robins, larks, swallows, orioles, minivets, bulbuls, babblers, flycatchers, thrushes, pipits, wagtails, flower-peckers, weaver birds, munias, pittas, etc. Most of these birds are of small or medium size and many of them are brightly coloured.

These are essentially perching birds. They all have four toes, three of which are arranged in front and one points backwards, and are adapted for perching. This Order contains more than half of all the known birds, and includes numerous families, of which no less than twenty-four families are represented by exhibited specimens in this Gallery.

Family CORVIDAE

This family includes the crows and their allies such as the Tree pies, Magpies, Jays, Nutcrackers, Ravens, Jackdaws, etc. Of these, the Crows and the Tree-pies alone are represented in South India and are exhibited in this Gallery.

THE HOUSE CROW

The House Crow (*Corvus splendens*) is perhaps the commonest and most familiar bird found everywhere in India. It is omnivorous and serves as a useful scavenger helping to keep the towns and villages clean of refuse. It lays four to five pale blue-green speckled eggs in a clumsy nest composed of twigs. A simplified habitat group showing a specimen of the House Crow with its nest and eggs is exhibited in addition to some separate specimens at the commencement of the regular systematic series,

THE JUNGLE CROW

The Jungle Crow (*Corvus macrorhynchos*) is larger than the house crow, with a much heavier beak. The plumage is black throughout, without the smoky grey tinge around the neck, characteristic of the house crow. The Jungle Crow is mainly a bird of the country side, but may be seen also in towns and villages in small numbers. Like the house crow, it is omnivorous, but inclined to be more highly predaceous, feeding on eggs and young of birds, poultry, etc.

THE INDIAN TREE PIE

The Indian Tree Pie (*Dendrocitta vagabunda*) is a long-tailed, chestnut-brown bird with a dull, smoky black head and neck, and a sooty brown breast. The Tree Pie is essentially arboreal in its habits and is common in gardens and orchards. Its food is quite varied, consisting of fruits, insects, lizards, frogs, centipedes, eggs and young birds, and sometimes even carrion. Tree Pies are sociable birds, associating in small flocks and keeping mostly to trees, seldom descending to the ground. They are generally noisy birds, uttering a variety of calls, often loud and harsh.

SOUTHERN TREE PIE

A specimen of the Southern Tree Pie (*Dendrocitta leucogastra*) is also exhibited. This is essentially an inhabitant of heavy forest and is found from the foot of the hills upto an altitude of about 5,000 in the hills. In habits, it is similar to the Indian Tree Pie.

Family PARIDAE

The Tits.

Tits are small perching birds, with very short, straight and conical beak. The nostrils at the base of the beak are concealed beneath short, forwardly directed feathers. This family includes active little sociable birds, clambering about among branches and twigs in search of insects. Tits are beneficial to man as they destroy large numbers of

harmful insect pests and their larvae in gardens and orchards. They are often apt to be pugnacious in their disposition.

THE INDIAN GREY TIT

The Indian Grey Tit (*Parus major*) is a greyish black bird with whitish under parts and glossy black head, with glistening white patches on the cheek. It usually inhabits wooded localities and is found from the plains, up to an altitude of about 6,000 feet in the hills. They are very active little birds clinging to stems and twigs often in all sorts of acrobatic attitudes. Their food consists of insects, larvae, flower buds, fruits, nuts and seeds.

THE SOUTHERN YELLOW-CHEEKED TIT

The Southern Yellow-cheeked Tit (*Parus xanthogenys travancoreensis*) is found throughout the Peninsula of India south of Chota Nagpur in the hills up to elevations of about 6,000 feet. During the breeding season it is found between 2,000 and 6,000 feet, sometimes ranging even higher than this in the Nilgiris and descending to the plains during the winter.

Family SITTIDAE

The Nuthatches

The Nuthatches are small birds, closely allied to the Tits. The habits of the Nuthatches resemble somewhat those of the Woodpeckers. They are typically rather stout little birds, with a short, square tail, and straight, narrow fairly long, pointed beak. The legs are short and the feet large and strong, with sharp, strong claws. Nuthatches are generally found in family parties, hunting all over trunks and branches of trees for insects that hide in bark crevices, and tap the barks of trees to dislodge insects in much the same way as Woodpeckers do. They also feed on nuts, boring holes into them by hammering with their beaks and extracting their contents. Unlike the Woodpeckers, however, the Nuthatches commonly begin at the top of a tree and work downwards in their search for insects.

Specimens of the two common species of Nuthatches occurring in South India, namely, the Chestnut-bellied Nuthatch (*Sitta castanea*) and the Velvet-fronted Nuthatch (*Sitta frontalis*) are exhibited. The latter is from Wynaad. Both species frequent well wooded localities and are commonly found in association with parties of other insect-hunting birds.

Family TIMALIIDAE

The Babblers

The Babblers constitute a large family of tropical and sub-tropical birds found in Africa and the Oriental Region. They comprise a large number of species including the well known "Seven Sisters", or the Common Babbler, so commonly met with in our gardens and compounds. Babblers are small to medium-sized perching birds, usually of dull brownish or greyish brown colour and largely of terrestrial habits. The wings are short and rounded and their plumage is generally long, soft and rather lax. The legs and feet are strong, but their flight is feeble and never sustained. For the most part they frequent lightly wooded country or scrub land, and many species are gregarious, moving about in groups of about a dozen or so. The nests are usually placed on low bushes or on the ground.

Specimens belonging to several different common species of South Indian Babblers are exhibited.

THE WHITE-HEADED BABBLER

The White-headed Babbler (*Turdoides striatus* or *Turdoides griseus*) is popularly known as the "Seven Sisters" on account of its habit of always congregating in groups of about six to a dozen individuals, but very frequently numbering exactly seven. It is essentially a bird of the plains, inhabiting compounds, gardens and groves in towns and villages wherever there is plenty of vegetation. It generally moves about in small flocks or "sisterhoods" and is usually noisy and excitable, feeding on the ground and often flying up into the trees when disturbed. This

has been termed by Salim Ali as the Jungle Babbler, but actually the real Jungle Babbler seems to be a different species.

THE SOUTHERN JUNGLE BABBLER

The Southern Jungle Babbler (*Turdoides striatus malabaricus*) resembles the preceding species closely in its habits. They are noisy, active birds, gregarious in habits and flocking together into parties of about six to a dozen. It is found throughout the plains and in the hill ranges up to an altitude of 4,000 feet. It is found in all types of country but prefers the neighbourhood of man and is often found in gardens and groves in towns and villages. This is the southern race of the species, *Turdoides terricolor* which is found extensively all over North India. A male specimen from Sirumalais and an egg are exhibited.

THE COMMON BABBLER

The Common Babbler (*Turdoides caudatus*) differs from the preceding species of Babblers in its longer tail, and in its longer and more slender bill. As a rule this bird avoids humid forest and swampy ground and prefers dry open country. They are found in the dry plains and in the hills up to an altitude of about 4,000 feet. They generally live in small parties of about six to eight, feeding mostly on the ground and shuffling their way along through thorny bushes and shrubs. Their flight is feeble. Their food consists mostly of insects.

Other closely related species of Babblers of the same genus (*Turdoides*) exhibited in this Gallery are the Southern Grey Babbler (*Turdoides malcomi*) and the Rufous Babbler (*Argya subrufa*). The Southern Grey Babbler frequents more heavily forested areas and is gregarious. It is very noisy and excitable in its habits, feeding mostly on insects, but sometimes also on seeds and fruit.

THE RUFOUS BABBLER

The Rufous Babbler (*Turdoides subrufus*) is very similar in its habits to the Common Babbler, except that it is con-

fined more exclusively to the jungle and bamboo trees quite away from the vicinity of man.

THE SOUTHERN INDIAN SCIMITAR BABBLER

The Southern Indian Scimitar Babbler (*Pomatorhinus schisticeps travancoreensis*) is a gregarious species, confined to wooded country and going about in small parties in the thick undergrowth and bamboo bushes in the forest. Its bill is characteristically scimitar-shaped and is well adapted for digging in the moist ground for the insects and grubs on which it mainly feeds. This species is chiefly confined to hilly and forested country up to an altitude of about 6,000 feet. These birds utter a variety of soft musical calls.

THE RUFOUS-BELLIED BABBLER

The Rufous-bellied Babbler (*Dumetia hyperythra*) is a small Babbler about the size of a sparrow usually found in small parties of about five to ten skulking among tufts of tall grass and thorny bushes in lightly wooded country. As a rule it is much more shy than the Common Babbler and generally keeps to thick cover in scrub grass and bamboo bushes.

THE SMALL WHITE-THROATED BABBLER

The Small White-throated Babbler (*Dumetia hyperythra albogularis*) is more or less similar to the preceding species, but has a pure white throat. This little Babbler may be found in any type of country other than actual forest. It is found in small parties of about five to ten individuals, skulking among bushes and feeding on insects, insect larvae and the nectar of flowers.

THE INDIAN YELLOW-EYED BABBLER

The Indian Yellow-eyed Babbler (*Chrysomma sinensis sinensis* = *Pyctorhis sinensis sinensis*) is chestnut brown above with white underparts and with a conspicuous orange-yellow ring round the eye. It is found in small flocks, skulking among thorny scrub and bushes, hunting for spiders and insects on which they mainly feed. When alarmed, they hop away and hide in the thick undergrowth,

uttering a harsh cry. They are found in scrub and grass jungle in the plains and in the hills up to an altitude of about 5,000 feet.

THE SPOTTED BABBLER

The Spotted Babbler (*Pellorneum ruficeps ruficeps*) is a small, olive brown bird with whitish underparts, a rufous brown cap and streaked breast. It is a very shy bird, usually found skulking in the thick undergrowth in well wooded country. It prefers particularly hillsides overgrown with bamboo bushes and scrubby vegetation. It spends much of its life on the ground searching for insects among fallen leaves. It occurs in the hills up to an altitude of 5,000 feet.

THE NILGIRI QUAKER BABBLER

The Nilgiri Quaker Babbler (*Alcippe poioicephala poioicephala*) is another closely allied, small, olive brown Babbler with ashy grey head and neck and paler underparts. It is widely distributed in Peninsular India and Assam and Burma, but not found in Ceylon. It is mostly arboreal in its habits and commonly occurs in small flocks of five to ten or more, hunting for insects, etc., in the foliage along with other species of birds. It prefers moist forest in hilly country and frequently climbs very high on the trees, rarely ever descending to the ground. A single specimen from Kodaikanal is exhibited.

THE BLACK-HEADED BABBLER

The Black-headed Babbler (*Rhopocichla atriceps atriceps*) is a small, sparrow-like Babbler, very similar in its habits to the Spotted Babbler. Like the latter, it is rather shy and skulking in its habits, and frequents the thickest undergrowth in densely forested country, moving about in small flocks of five or six and feeding mostly on insects.

BOURDILLON'S BABBLER

A female specimen of a local race of this species, the Bourdillon's Babbler (*Rhopocichla atriceps bourdilloni*), which is confined to Travancore, is also exhibited in this Gallery.

Family PYCNONOTIDAE

The Bulbuls

This is a large family of rather small perching birds, mostly arboreal in habits and seldom descending to the ground. They live mostly in pairs, feeding largely on small fruits, but they also prey on many species of insects as well. Bulbuls are chiefly ditinguished from the other allied families of perching birds by the shortness of their legs and their rather short and rounded wings and the either square or slightly forked tail.

This family is divided into two sub-families—the Liotrichinae, which includes the Iora and the Chloropsis, and the Pycnonotinae which includes all the rest of the Bulbuls.

Subfamily LIOTRICHINAE

THE COMMON IORA

The Common Iora (*Aegithinia tiphia tiphia*) is distinguished by its characteristic black and yellow colour pattern and the presence of two white wing bars. It is a bird of the plains and lower elevations in the hills and is seldom found above 2,000 feet. It is chiefly arboreal in its habits and frequents gardens and groves in towns and villages and also in lightly wooded country. It usually escapes notice as it hops quietly among the thick foliage where its colour harmonizes well with the green colour of the leaves. It hops from branch to branch and may often be found clinging on to twigs upside down or sideways in its search for insects amongst the leaves. It has a variety of long drawn out musical calls punctuated by short chirrupping notes.

THE MALABAR CHLOROPSIS

The Malabar Chloropsis (*Chloropsis aurifrons frontalis*) is the southern race of the Gold-fronted Chloropsis (*Chloropsis aurifrons aurifrons*) or "Green Bulbul" which is found locally throughout the Indian Union. The Malabar Chloropsis of which a male and a female specimen are

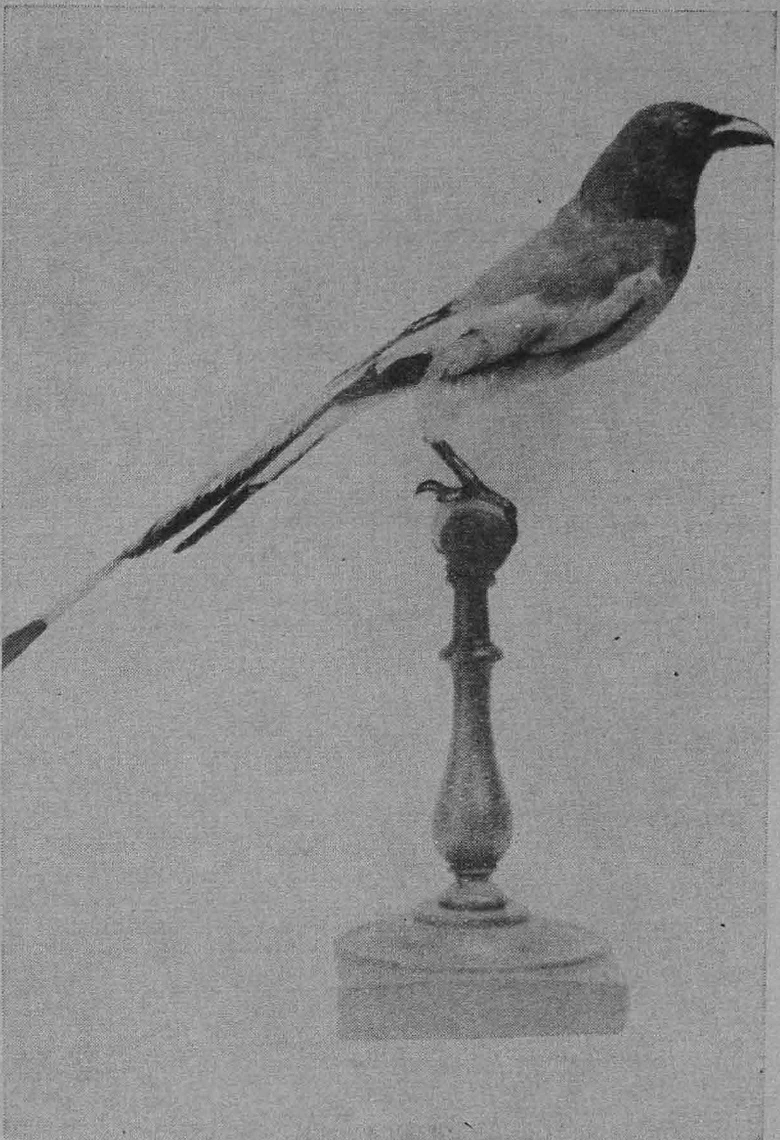


Fig. 1. Dendrocitta vagabunda :

The Indian Tree Pie.

Fig. 2. **Kitta chinensis chinensis :**

The Indian Green Magpie.

exhibited in this gallery, is confined to the West Coast of India, ranging from Khandala to Ceylon, but is otherwise very similar in its habits to the typical form. The Malabar race is found mostly in the hills at all elevations up to an altitude of about 6,000 feet, inhabiting well wooded areas or open country near human habitations. It is almost entirely arboreal, feeding on insects, spiders, fruit and flower nectar.

Subfamily PYCNONOTINAE

This sub-family includes all the remaining species of Bulbuls.

THE RED-VENTED BULBUL

The Red-vented Bulbul (*Pycnonotus cafer cafer*, formerly known as *Molpastes cafer cafer* or *Molpastes haemorrhous haemorrhous*) is one of the commonest and most familiar of Indian birds frequenting gardens and residential compounds and is readily distinguished by its partially crested black head and the conspicuous crimson patch in the vent (i.e., below the base of the tail). It is noted for its pugnacious nature and is popular as a fighting bird. They often collect in large numbers in gardens, orchards and compounds, for feeding on the fruits of the banyan and pipal trees and on winged termites. The food of this and other allied species of Bulbuls consists largely of fruits and berries of various kinds, as well as insects and grubs.

THE SOUTHERN INDIAN BLACK BULBUL

The Southern Indian Black Bulbul (*Hypsipetes madagascariensis ganeesa*) is somewhat larger in size than the Red-vented Bulbul. It is a dark ashy grey bird, with a coral red beak and a black crest, and somewhat long, bluntly forked tail. It is a bird frequenting high trees in forest, especially on the hills up to an altitude of about 5,000 feet. They are very noisy and restless birds, often moving about in large flocks high up on the tree tops and rarely ever desecending to the ground or to the undergrowth. Their food consists mostly of berries, but insects are also eaten.

THE YELLOW-BROWED BULBUL

The Yellow-browed Bulbul (*Hypsipetes indicus indicus*) is a bird with a rich, yellowish green plumage, with bright yellow face and underparts, about the size of the Red-vented Bulbul. It is essentially a bird of the forests, found throughout the low country and in the hills at all heights from 2,000 feet to about 6,500 feet. It moves about in small flocks and is quite noisy, uttering a variety of soft, musical calls. It sometimes ventures into gardens and orchards, and feeds mostly on insects, seeds and fruits.

THE RED-WHISKERED BULBUL

The Red-whiskered Bulbul (*Pycnonotus jocosus, emeria*) is about the size of the Red-vented Bulbul, but is easily distinguished from the latter by its black, erect, pointed crest and a bunch of crimson whiskers. Its habits are much the same as those of the Red-vented Bulbul, but as a rule it prefers more well wooded localities and is commonly found in the hills up to an altitude of about 6,000 feet. However, they avoid thick forest, and often enter gardens, orchards and low scrub jungle, and are cheerful, lively birds, uttering a variety of loud, musical calls. In the Nilgiris they are perhaps one of the commonest birds. They feed both on insects and fruits and usually become tame and confiding in captivity.

A specimen of a local race of this species, namely, the Southern Red-whiskered Bulbul (*Pycnonotus jocosus fusicaudata*) from the Shevroys is also exhibited, along with its egg.

THE YELLOW-THROATED BULBUL

The Yellow-throated Bulbul (*Pycnonotus xantholaemus*) is another South Indian species of Bulbul which, however, is more restricted in its distribution, being confined to Travancore, Mysore and the Eastern Ghats and appears to be much rarer than the common species enumerated above. It is found from the foothills up to nearly 5,000 feet. It is said to be a shy, active little bird, very restless and when disturbed, may fly a considerable distance before

settling down again. It is said to ascend the higher ranges for breeding purposes. Two specimens from Udayagiri, Nellore District, Andhra Pradesh, are exhibited.

THE RUBY-THROATED BULBUL

The Ruby-throated Bulbul (*Pycnonotus melanicterus gularis*) is a closely allied species, readily distinguished by its black head and ruby-red throat. It is also restricted in its distribution, being confined to Western India from Kanara to South Travancore. It is a shy bird, inhabiting forested localities in the plains, going about in small flocks or sometimes singly or in pairs. Two stuffed specimens—a male and a female—from Cochin forest are exhibited.

THE WHITE-BROWED BULBUL

The White-browed Bulbul (*Pycnonotus luteolus*) is a much commoner and more widely distributed species than the two preceding species, being found throughout Peninsular India south of the Indo-Gangetic plains. It avoids actual forest, but frequents shrubby areas in dry, open, scrubland and prefers bushy localities in low country. It often enters large gardens and compounds with thick vegetation, and may be easily located by its low, subdued "churring" call, but frequently the male bursts out into a loud, rattling call. It feeds chiefly on berries, insects and nectar of flowers. This and other species of Bulbuls play an important role in the pollination of flowers and the dispersal of seeds by virtue of their feeding habits. One of the two specimens exhibited, together with two eggs, is from the Museum compound in Madras.

Family TURDIDAE

(Stone Chats, Bush Chats, Robins, Thrushes)

This family includes a large number of species of small to medium-sized perching birds, similar to the Babblers in many respects, but with a thinner and more compact plumage and longer wings. The young of these birds differ in colouration from their parents, usually in being more or less spotted or variously marked. The legs are rather

long and strong, and on the ground these birds are able to proceed rapidly by hopping. The wings are fairly long and the tail is moderately long and square at the tip. They are mainly insectivorous birds, but many species eat fruit as well. A number of species are migratory.

This family is sometimes divided into four subfamilies, namely, the Saxicolinae (Chats), Phoenicurinae (Bluethroats and Robins), the Brachypteryginae (the Blue Chats) and the Turdinae (the Thrushes), but for the purposes of the present Guide book, all the birds of this family are treated together as members of a single group —the Turdidae.

THE INDIAN BLUE CHAT

The Indian Blue Chat (*Erithacus brunneus brunneus*) is an extremely shy, sparrow-like bird, frequenting forests, where it keeps mostly to the ground, never ascending up the trees. It breeds in the Himalayas, Kashmir, Sikkim and Bhutan, but in the winter it migrates south and is found throughout India and Ceylon. In South India it frequents shady forests and the vicinity of ravines and hill streams. It hops about amidst the undergrowth in search of insects on which it mainly feeds. A single male specimen from Wynaad is exhibited.

THE INDIAN PIED BUSH CHAT OR STONE CHAT

The Indian Pied Bush Chat or Stone Chat (*Saxicola caprata*) is found throughout the Indian Union, Ceylon, Pakistan and Burma, either as a resident bird or a winter visitor. It is a small, sparrow-like bird, with marked difference in colour between the sexes. The male is black, with white patches on the rump, abdomen and wings, while the female is earthy brown, with pale, rust-coloured rump. The Pied Bush Chat frequents grassland and thin, lightly wooded scrub jungle and hill sides and prefers the vicinity of villages, gardens and cultivated fields. It generally perches on an exposed rock, stone or tree stump and makes short flights to the ground to feed on the insects. It also makes short sallies in the air, hawking about for flying insects. Its call is a harsh '*chek-chek-chek*', but the male

has a pleasant whistling song during the breeding season.

Two well defined geographical races of this species occur in India, namely, the Southern Indian Stone-Chat (*Saxicola caprata atrata*) and the Northern Indian Stone Chat (*Saxicola caprata bicolor*). The Southern Indian form is confined to Ceylon, Travancore, Mysore, Nilgiris and Malabar, while the other race occurs all over India north of this zone. Two specimens of the Northern Indian form from Kurnool, and an egg of the Southern race are exhbited.

THE INDIAN REDSTART

The Indian Redstart (*Phoenichurus ochruros*) is a rather slender, active little bird with a characteristic black and orange-chestnut plumage. It is a winter visitor found more or less throughout the plains and hills of India up to Travancore and the Nilgiris. It is found frequenting gardens, groves and cultivated fields between September and April. It is active in its habits, and keeps constantly quivering its tail and flying from perch to perch on boulders or branches of trees. It feeds mainly on insects and spiders, picking them off from the ground. A male and a female specimen from Madras are exhibited.

THE BLACK-BACKED INDIAN ROBIN

The Black-backed Indian Robin (*Saxicoloides fulicata fulicata*) is an active little black bird with a white patch on its wings and a rusty red patch on the under side at the root of the tail. The male is glossy black, while the female is ashy brown or dark brown, without the white patch on the wings. It is found throughout India in the plains and in the hills up to about 5,000 feet. If frequents rugged scrubland in the vicinity of towns and villages where it may be commonly seen perched on tops of thatched roofs. It often prefers stony and bare hill sides and dried up ravines. It is an active bird hopping along the ground and perching on stones or ant hills and frequently jerking up its cocked tail. Its food consists of insects, spiders, etc. This is a familiar bird of the country side in the plains, easily recognized by its habit of holding the

long tail erect so as to expose the bright chestnut red patch below the tail.

THE MAGPIE ROBIN

The Magpie Robin (*Copsychus saularis*) is one of our most familiar birds frequenting towns and villages all over India and Ceylon. The male is glossy black over the head, neck and breast and the upper plumage, while the rest of the lower plumage is white. In the female, the black parts are replaced by brown and slaty grey. It is easily recognized in the field by its cocked tail, and the black and white pattern of colour. It may be seen almost in every garden or compound hunting for insects undisturbed by the presence of man. It has the habit or expanding its tail anto a fan and jerking it up until it nearly meets the head. It is one of our best songsters in the breeding season. It selects a site for its nest usually in the vicinity of human habitation. A habitat group exhibited in this Gallery shows a Magpie Robin which has built its nest inside an earthen pot.

THE INDIAN SHAMA

The Indian Shama (*Copsychus malabaricus* = *Kittacincla macroura* or *Kittacincla malabarica*) is a close relative of the Magpie Robin and resembles the latter very much except that the under parts are chestnut instead of being white. It is essentially a bird of the forested foot. hills where they prefer the vicinity of shady ravines and hill streams. It is shy and retiring in its habits and as a rule avoids the neighbourhood of human dwellings. It feeds mostly on the ground, searching for insects, worms and fruits fallen from the trees. It is well known as one of the favourite singing birds of India and has a loud, richly melodious song. This bird has the curious habit of frequently striking the wings together above the body as it flies across open ground, especially during the breeding season.

THE INDIAN BLACKBIRD

The Indian Blackbird (*Turdus merula*) is a greyish brown bird inhabiting well wooded localities in the hills

and often wandering into the vicinity of towns and villages in the plains. It has the habit of hopping on the ground, turning over stones, and leaves, etc., in search of insects and fallen fruit on which it mainly feeds. It also sometimes feeds on flower nectar and fruits on the trees.

Specimens of three distinct races of the Indian Blackbird are exhibited in this Gallery, namely, the Black-capped Blackbird (*Turdus merula nigropileus*), which occurs in Western India, north of Mysore and the Nilgiris and extending north to the Madhya Pradesh, the Nilgiri Blackbird (*Turdus merula simillimus*) confined to the Nilgiris and the Bourdillon's Blackbird, (*Turdus merula bourdilloni*) which is found in South West India from South Travancore to the Palni Hills. The habits of all these races are similar to those of the typical form described above.

THE WYNAAD LAUGHING THRUSH

The Wynaad Laughing Thrush (*Garrulax delesserti*) is confined to dense, forested country in the Wynaad and neighbouring areas in the Western Ghats. It is rather secretive and sedentary in its habits, seldom moving away from its accustomed haunts. It generally occurs in large parties and feeds mainly on insects, etc., on the ground among fallen leaves. A single specimen of this rather rare species from South Coorg is exhibited.

THE NILGIRI, OR RUFOUS-BREASTED, LAUGHING THRUSH

The Nilgiri, or rufous-breasted, Laughing Thrush (*Garrulax cachinnans*) is a resident species confined to the Nilgiris at elevations of over 4,500 feet. This species is extremely common in the Nilgiris, especially in the higher altitudes. It generally occurs in parties which live in dense undergrowth searching on the ground most of the time for insects and fallen berries on which they mostly feed. It has a shrill call very similar to human laughter. The nest and egg of this species from the Nilgiris are exhibited.

THE TRAVANCORE LAUGHING THRUSH

The Travancore Laughing Thrush (*Garrulax jerdoni fairbanki*) is a very similar hill species closely related to the preceding species. It is represented in the exhibited series by two races, *T. jerdoni meridionale*, Blanford's Laughing Thrush from South Travancore, and *T. jerdoni fairbanki*, the Travancore Laughing Thrush, which is confined to North Travancore.

THE WHITE-THROATED GROUND THRUSH

The White-throated Ground Thrush (*Zoothera citrina*) is a plump, short-tailed Thrush about the size of a Mynah, with yellowish brown head, neck and under parts and slaty Blue upper plumage. It frequents forested areas mainly in the neighbourhood of ravines and hill streams. It digs in the ground among fallen leaves for insects and berries. The males have a rich whistling song during the breeding season. Specimens of the two common races of this species are exhibited, namely, the typical White-throated Ground Thrush of the Peninsula (*Geocichla citrina cyanotis*) and the North Indian Orange-headed Ground Thrush (*Geocichia citrina citrina*).

THE PIED GROUND THRUSH

The Pied Ground Thrush (*Zoothera wardii*) is a closely allied species, occurring in the Himalayas from the Sutlej to the extreme east of Assam, north of the Brahmaputra. In winter it migrates to the extreme south of India and Ceylon, and is often found in the Nilgiris. Although normally an inhabitant of the forests, it does not avoid the vicinity of human dwellings. It keeps almost entirely to the ground while feeding on insects, and is, as a rule a silent bird, although restless in its habits. It inhabits the hills between elevations of 2,500 and 5,000 feet. The exact locality of the two exhibited specimens of this species is not recorded.

THE BLUE-HEADED ROCK THRUSH

The Blue-headed Rock Thrush (*Monticola cinclorhynchus*) is a migratory species with a characteristic blue and black upper plumage, the head, chin and throat also being

Fig. 3. Pycnonotus jocosus emeria :

The Red-Whiskered Bulbul.

Fig. 4. Terpsiphone paradisi paradisi :

The Indian Paradise Flycatcher

(Mature Male).

Fig. 5. Terpsiphone paradisi paradisi :

The Indian Paradise Flycatcher

(Female).

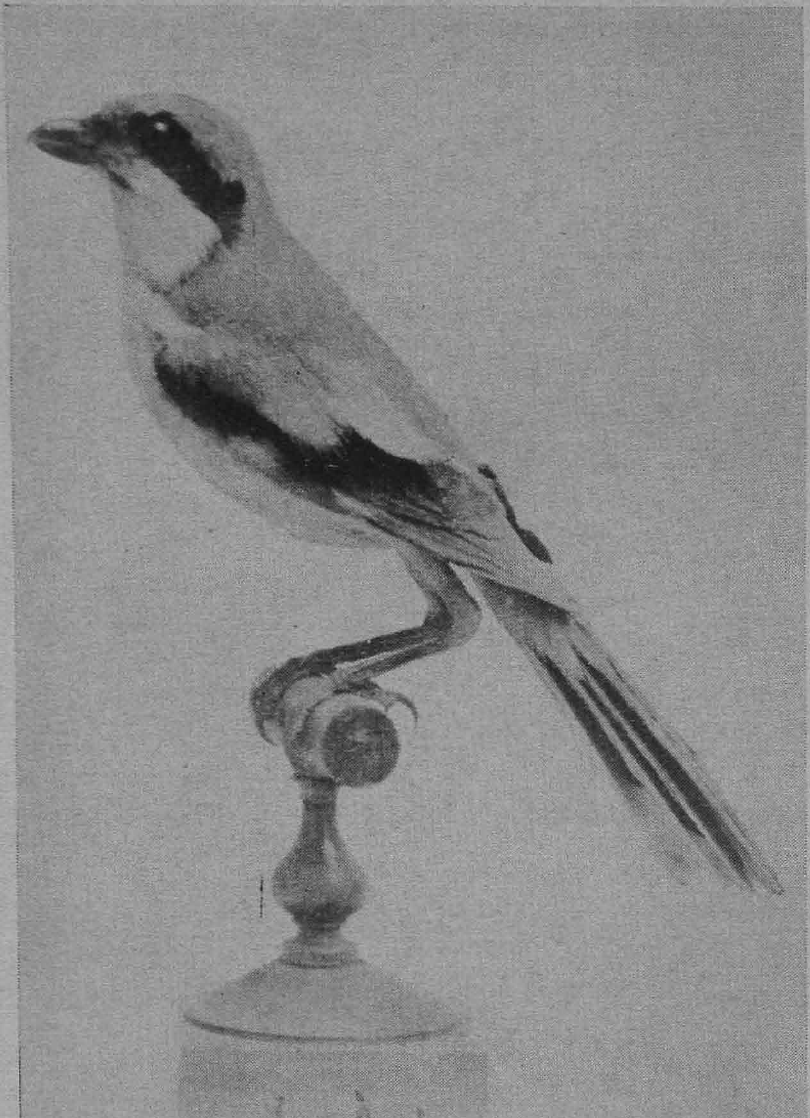


Fig. 6. Lanius excubitor lahtora :

The Indian Grey Shrike.

bule. In winter it is found throughout India and is particularly common in the Western Ghats. It frequents open hill forests and lightly wooded country and bamboo jungle, and is particularly common in coffee and cardamon plantations. This Thrush is, as a rule, silent and secretive in its habits in its winter quarters but during the breeding season the males have a loud, clear, low, pleasant call which betrays its presence. It feeds both on insects and on berries. It breeds throughout the Himalayas where it is a familiar bird in summer.

THE WESTERN BLUE ROCK THRUSH

The Western Blue Rock Thrush (*Monticola solitarius*) is a rather rare winter visitor to Southern India and Ceylon. The female differs from the male in being dull greyish brown, with the face and breast mottled with pale buff. It frequents hill sides strewn with boulders and may be seen often perched on top of rocks and huge boulders. It is silent during the winter, but has a melodious song in its northern quarters during the breeding season.

THE MALABAR WHISTLING THRUSH

The Malabar Whistling Thrush (*Myiophoneus horsfie'di*) is essentially a bird of the hills, inhabiting the Western Ghats and Shevroy Hills in South India. It is a handsome bluish black bird with glossy metallic blue patches on the forehead and shoulders. It frequents well wooded rocky nullahs and torrential streams, both near and away from human dwellings. In the breeding season it develops a rich, melodious, whistling song, which has earned for the bird its popular name of "Whistling Schoolboy" or "Idle Schoolboy". It is heard chiefly in the early morning. Its food consists mainly of aquatic insects, snails and crabs. The bird has the habit of constantly jerking its tail and spreading it fanwise, whilst feeding, in order to dislodge the lurking prey from the crevices of rocks, stones, etc.

Family MUSCICAPIDAE

Flycatchers

Flycatchers constitute a very large family of birds found all over the world and very well represented in India.

They are small, Thrush-like birds, in which the plumage of the nestling is normally mottled. The bill is flat and pointed and there are numerous hairs stretching from the forehead over the nostrils. The wings are fairly long, making it possible for the birds to fly swiftly and powerfully. The legs and feet, on the other hand, are small and weak, and used only for perching. The tail is moderately long and square, or slightly forked at the tip. In some species (e.g., the Paradise Flycatcher) the tail is long and streamer-like. Many species are migratory. Their food consists mostly of insects which they capture on the wing. As a rule, they are solitary birds. Their colour is variable, ranging from dull browns and greys to brilliant hues.

Several species of Flycatchers occur in India; of these, specimens of most of the common South Indian species are exhibited in this Gallery.

THE TICKELL'S BLUE FLYCATCHER

The Tickell's Blue Flycatcher (*Muscicapa tickelliae tickelliae = Cyornis tickelliae tickelliae*) is a blue bird with bright azure blue forehead and found practically throughout India. It inhabits well wooded cultivated country and prefers especially the foothills where it haunts shady ravines and sholas. It is an active little bird with a sharp metallic call and feeds mainly on flies, mosquitoes and gnats.

THE BLUE-THROATED FLYCATCHER

The Blue-throated Flycatcher (*Muscicapa rubeculoides rubeculoides=Cyornis rubeculoides rubeculoides*) is another dark blue Flycatcher, very similar to the preceding species, but is migratory, being found in the Himalayas during summer and migrating down to Eastern and North Eastern India during the winter. It is essentially a bird of the forest, but in winter, when it migrates, it may be found in any type of well wooded country, cultivated or wild, and is especially seen in open bamboo jungles. They are active little birds mainly found hunting for insects in the low bushes and undergrowth.

THE WHITE-BELLIED BLUE FLYCATCHER

The White-bellied Blue Flycatcher (*Muscicapa pallipes pallipes* = *Cyornis pallipes pallipes*) occurs in South West India on the Western Ghats, from Belgaum to the extreme South of Travancore. It is confined almost entirely to dense forest from the foothills up to an altitude of about 6,000 feet. It has a sweet but rather melancholy song which is heard either early in the morning or late in the evening. A male specimen from Wynaad is exhibited.

THE VERDITER FLYCATCHER

The Verditer Flycatcher (*Muscicapa thalassina thalassina*) is a migratory bird found breeding in the Himalayas between 4,000 and 9,000 feet in summer, but more or less throughout India in winter. The male is bright bluish green, but the female is duller and more greyish. It inhabits well wooded country and is quite active, frequently sweeping into the air and catching insects on the wing. It is a bold and confiding bird, often entering into gardens and is generally silent in winter, but the males have a pleasant call during the breeding season.

THE NILGIRI VERDITER FLYCATCHER OR BLUE FLYCATCHER

The Nilgiri Verditer Flycatcher or Blue Flycatcher (*Muscicapa albicaudata*) is somewhat smaller than the preceding species and is more or less a resident bird in the South Indian hills especially in the Nilgiris and Travancore Hills. It is more dull coloured, with white under parts. It breeds during summer in the hills between 2,500 and 6,000 feet. It does not appear to visit the plains during the winter. Only an egg of this species is exhibited in this Gallery.

THE LITTLE BROWN FLYCATCHER

The Little Brown Flycatcher (*Muscicapa latirostris*) is a quiet, little, solitary bird, frequenting the more secluded and well wooded country especially in places where the ground is rugged and broken. It is a rather dull coloured

bird with a predominantly pale, ashy grey plumage and a large, dark eye surrounded by a whitish ring. It generally keeps to the branches of shady trees and feeds on insects which it catches entirely on the wing. It is said to be a sociable bird during the winter. A single male specimen from the Shevroy Hills is exhibited.

THE BLACK AND ORANGE FLYCATCHER

The Black and Orange Fylcatcher (*Muscicapa nigrorufa*) is a strikingly coloured bird with a contrasting pattern of black on the head and parts of the wings and bright orange on the remainder of the plumage. It inhabits the hill ranges of South India from Cape Comorin to the Wynaad, generally above an altitude of 2,500 feet, wherever there is sufficiently thick forest. It feeds on insects, mainly in the lower branches of the trees.

THE INDIAN PARADISE FLYCATCHER

The Indian Paradise Flycatcher (*Terpsiphone paradisi paradisi*) is perhaps the most elegant of the Indian species of Flycatchers, and is found practically throughout India in the plains and in the hills up to about 5,000 feet. There is marked sexual dimorphism in this species. The adult male is silvery white with black, crested head and two long, streamer-like tail feathers, while the young male and the female are chestnut above and greyish white below. The young male has chestnut streamers in the tail while the female is without them. This handsome Flycatcher may be found singly or in pairs, frequenting shady groves, gardens and orchards and lightly wooded country. It is a graceful spectacle to see these elegant birds flying swiftly backwards and forwards in gardens and orchards with their long, streamer-like tail feathers trailing behind them. They are rather tame and confiding birds and feeding on insects entirely on the wing and never descending to the ground in search of their prey. They have a harsh, shrill call. They are essentially resident birds, but move about a great deal locally depending on the abundance of their insect food. Mature and immature specimens of both the male and the female are exhibited to illustrate the marked differences in the colour and in the nature of the tail feathers.

THE MADRAS BLACK-NAPED FLYCATCHER

The Madras Black-naped Flycatcher (*Monarcha azurea styani*) is distinguished by a large black patch on the nape and a crescent-shaped black bar across the fore-neck. The crown and sides of the black patch on the nape are brilliant azure blue. It occurs in the southern and western portions of the Indian Peninsula and is found both in the plains and in the hills up to an altitude of 3,000 feet or even higher. It is an active little bird catching insects always on the wing and seldom descending to the ground.

THE WHITE-BROWED FANTAIL FLYCATCHER

The White-browed Fantail Flycatcher (*Rhipidura aureola aureola*) is a fairly common Indian species of Flycatcher found more or less throughout India and is distinguished by its broad, white forehead and white underparts. It is a lively, active little bird, found in open, but well wooded country and is often seen frequenting groves and gardens. It feeds largely on mosquitoes and gnats entirely on the wing and is easily recognized by its jerky flight and restless movements. It has a sweet, melodious call, much like a human whistle. A male specimen from Madras and a nest of this species from the Nilgiris are exhibited.

THE WHITE-SPOTTED FANTAIL FLYCATCHER

The White-spotted Fantail Flycatcher (*Rhipidura albogularis albogularis*) is a closely allied species, more or less similar to the White-browed Fantail Flycatcher in appearance, but may be distinguished by the presence of a brown band across the white underparts. It is a resident species occurring in Central and Southern India in open country, especially in gardens and cultivated regions. It is particularly common in the Nilgiris. A single male specimen from Nallamalais is exhibited.

Family SYLVIIDAE

The Warblers

The Warblers constitute a large family of rather plain-looking birds of small size. They are closely related

to the Thrushes and Flycatchers, but may be readily distinguished from them by the young being unspotted. The beak is small and slender and the wings fairly long in the migratory species, but short and rounded in others. They are mostly arboreal in habit, and are seldom found on the ground. Many species of Warblers are migratory. They feed almost exclusively on small insects which they search for mostly among the foliage of bushes and trees.

This family includes the Warblers and the Tailor birds, but although a large number of species are recorded within Indian limits, only a few of the common South Indian species are exhibited in this Gallery.

BLYTH'S REED WARBLER

Blyth's Reed Warbler (*Acrocephalus dumetorum*) is a migratory bird visiting the plains of India and Ceylon during winter in large numbers, but breeding in its summer quarters far away in the north in Eastern Russia and West Siberia. It generally frequents marshy areas, but may also be found in low bush and scrub jungle, hopping actively about in search of small insects. In addition to its usual short, metallic call resembling the syllables "*chaik*" "*chaik*", it has also a rich, melodious song. A single female specimen from South Coorg is exhibited.

THE INDIAN TAILOR BIRD

The Indian Tailor Bird (*Orthotomus suitorius suitorius*) is a familiar and confiding little bird found in scrub jungles as well as in gardens and around human habitations. It is one of the best known of Indian birds, commonly seen hopping about actively and searching for insects among bushes and creepers. It is a small, greenish, restless bird, with a pointed tail and rufous crown often seen in gardens, even boldly entering verandahs of houses, especially in the outskirts of towns and villages. It constantly utters a loud, cheerful, strident call as it hops about. Its nest is a rough, cup-shaped structure composed of soft fibres, cotton wool, etc., made by ingeniously stitching together one or more large, flexible leaves, using its beak as a sewing needle, and strands of fibre or cottony fluff as the sewing thread.

THE RED-HEADED FANTAIL WARBLER

The Red-headed Fantail Warbler (*Cisticola exilis erythrocephala*) is a small, sparrow-like bird with the forehead and crown coloured chestnut and the back and shoulders boldly streaked with black. It occurs in South India in the hills of Mysore and Travancore and is also reported to be common in Coorg. It frequents places where there are wide stretches of grassland and as a rule avoids forest and scrub jungle. A single specimen from Kodaikanal is exhibited.

THE BROAD-TAILED GRASS WARBLER

The Board-tailed Grass Warbler (*Schoenicola platyura*), is a small bird with a characteristic ruddy upper plumage. The tail is brown, with distinct cross bands, and the chin, throat and abdomen are pure white. This is a rather shy bird, skulking among the long grass at the edge of paddy fields and on the outskirts of the jungle. It often frequents heavy jungle. The nest is a ball of grass with a side entrance.

SYKE'S TREE WARBLER

Syke's Tree Warbler (*Hippolais caligata rama*) is a winter visitor to South India. It is an active little bird with a pale brownish upper plumage and very pale, sandy buff lower plumage and white abdomen. It frequents dense bushes and keeps constantly moving, searching for insects in the dense foliage. In winter it is found throughout India as far south as the Palni Hills, but its summer breeding quarters is far away in the north in Southern Mongolia, Afghanistan and Baluchistan.

THE INDIAN LESSER WHITE-THROAT

The Indian Lesser White-throat (*Sylvia althaea althaea*) is a widely distributed migratory species, breeding in summer in Europe and Northern Asia and migrating down to Africa and Southern Asia during winter. They arrive in India by September and leave again in April. They

spend most of their time searching for insects and caterpillars in small bushes and undergrowth in forest and scrub jungle. They have a sweet, melodious, shrill song.

THE WREN WARBLERS

The Wren Warblers (Genus *Prinia*) are represented in the Gallery by the three common Indian species, the Franklin's Wren Warbler (*Prinia gracilis*), the Ashy Wren Warbler (*Prinia socialis*) and the Indian Wren Warbler (*Prinia subflava inornata*).

FRANKLIN'S WREN WARBLER

Franklin's Wren Warbler or Streaked, or Slender, Long-tailed Warbler (*Prinia gracilis*) is a little bird with a longish tail, closely resembling the Ashy Wren Warbler and easily mistaken for it, but may be distinguished from it by its grey breast band and whitish under parts. It is essentially a bird of the open country and low scrubland, and avoids heavy forest. It commonly enters gardens and compounds and is also found in cultivated country and open grassland studded with low bushes. Its flight is rather feeble and jerky, the tail being often jerked up awkwardly as it flies. It is an active little bird commonly seen searching for insects among low bushes and grass, or actually on the ground.

THE ASHY WREN WARBLER

The Ashy Wren Warbler (*Prinia socialis socialis*) is one of the commonest species of Indian Warblers found both in the hills and on the plains, usually in open country, frequenting gardens, moist scrub jungle, grassland and cultivated areas. It avoids forest and is often found near human habitations. It may be frequently seen hopping about in the shade, among bushes and shrubs, uttering its very loud and sharp call, resembling the syllables "*tee-tee-tee*" from time to time. It has the curious habit of shaking its rather longish, black-and-white-tipped tail loosely up and down as it hopes about. It feeds exclusively on insects. A single specimen from the Palni Hills is exhibited.

Fig. 7. Coracina novaehollandiae macei :
The Large Indian Cuckoo Shrike.

Fig. 8. Oriolus oriolus kundoo :

The Indian Golden Oriole.

THE INDIAN WREN WARBLER

The Indian Wren Warbler or the Plain, or Tawny-flanked Long-tailed Warbler (*Prinia subflava inornata*) is very similar in its size and appearance to the preceding species, but is rufous earthy brown above instead of ashy slate colour. It inhabits somewhat drier regions than the Ashy Wren Warbler and as a rule it prefers cultivated fields and grassland. Its flight is poor and laboured, and as it flies it often makes a snapping noise. Its small size and skulking habits have made this bird less well known than the preceding species, but the habits of both species are more or less the same.

Family LANIIDAE

The Shrikes

The Shrikes constitute a very large and extensive group of small, perching birds of arboreal habits. The beak is stout and strong and hooked at the tip of the upper mandible with a deep notch and a distinct tooth behind the hooked tip. The legs are rather short, but strong. They have rather large heads and many of them have a black band across the eye on the face. They are mostly insectivorous in habit and build open nests in bushes and trees. Their eggs are usually spotted. Shrikes are widely distributed in temperate and tropical regions of the world and are especially numerous in Africa. Shrikes are usually known as Butcher birds on account of their habit of storing their surplus food of insects, etc., by impaling them on thorns and then eating them at leisure.

Several species of Shrikes belonging to the genus *Lanius* and one or two species of Woodshrikes belonging to the genus *Tephrodornis*, occurring in South India, are exhibited in this Gallery.

THE BAY-BACKED SHRIKE

The Bay-backed Shrike (*Lanius vittatus*) is the smallest of Indian Shrikes and is also perhaps the commonest species of Shrike met with in South India. It is a bird of open country and cultivated areas, frequenting gardens and

groves, but avoids dry deserts as well as heavy forest. It utters a harsh, churring note, but the male has a pleasant warbling song during the breeding season. It is a good mimic, imitating the songs of other birds. Its food consists of locusts and other large insects and lizards, etc. The male is noted for its amusing courtship displays during the breeding season.

THE INDIAN GREY SHRIKE

The Indian Grey Shrike (*Lanius excubitor lahtora*) is a silvery grey bird with a somewhat long, black-and-white tail, and is larger than the Bay-backed Shrike. Its black wing feathers bear a conspicuous white patch or "mirror" prominently seen in flight. The Indian Grey Shrike is a familiar bird in open country, often preferring barren and semi-desert regions and dry cultivation. It has the habit of perching on the tops of bushes and small trees, and from this position it often swoops down to the ground to snatch its prey consisting of locusts and all kinds of large insects, lizards, mice, etc. It has a harsh, grating call, and like some other species of Shrikes, it impales its surplus food on thorns and eats them later.

THE RUFOUS-BACKED SHRIKE

The Rufous-backed Shrike (*Lanius schach erythronotus*) is distinguished from the preceding species of Shrikes by the lower part of the back and rump being of a bright rufous brown colour. It is found practically throughout the Indian Union and is a local migrant visiting certain areas seasonally. It has the characteristic, stout, hooked bill typical of Shrikes. Its habits, in general, are more or less the same as those of the other Shrikes, but as a rule it frequents less arid country than the preceding species and also avoids heavy forest. Its call is harsh and it often mimics other calls and noises heard in its immediate surroundings. Its food consists of grasshoppers, large insects, lizards, mice, etc. Two specimens from Madras and an egg of this species are exhibited.

THE BROWN SHRIKE

The Brown Shrike (*Lanius cristatus cristatus*) is much less common than the preceding species and is migratory,

breeding in summer throughout Siberia and Northern China and migrating southwards in winter, when it is found practically throughout India and Ceylon. It frequents more heavily wooded regions than the preceding species and is often found in scrub land, hedgerows and the outskirts of jungle. It is an active, restless bird, often seen perched on tops of bushes and trees uttering its harsh call. It feeds chiefly on insects, especially grasshoppers, but occasionally it feeds on lizards and young birds also. A male specimen from Wynaad and a female from Kistna District are exhibited.

THE BLACK-BACKED PIED SHRIKE

The Black-backed Pied Shrike (*Hemipvs picatus picatus*) is distinguished from the preceding species of shrikes by the whole of the upper plumage being glossy black, with a white band bordering the feathers of the lower back and tail. It is a tiny little tree-hunting bird, resembling more or less a Flycatcher in its habits, catching insects on the wing as it flies from tree to tree. It is generally found in pairs in tall trees near the edge of the jungle or in thin scrub or among bushes.

THE INDIAN COMMON WOOD SHRIKE

The Indian Common Wood Shrike (*Tephrodornis pondicerianus pondicerianus*) is a quiet, unobtrusive, greyish little bird common on the plains and is almost entirely arboreal. It frequents open country or thin scrub or bamboo jungle, hunting for insects in small parties almost exclusively among the branches and foliage of trees. In the breeding season it has a melodious song.

THE MALABAR WOOD SHRIKE

The Malabar Wood Shrike (*Tephrodornis virgatus sylvicola*) occurs on the West Coast of India from the extreme south northwards up to Bombay, and also in the Nilgiris and the adjoining hills. It is dark bluish ashy on the crown and dark ashy brown on the other parts of the upper plumage. It is very similar to the preceding species in its habits, but inhabits much denser forest than mere

thin scrub or bamboo jungle. A single male specimen from Tittimati, South Coorg, is exhibited in this Gallery.

Family CAMPEPHAGIDAE

Minivets and Cuckoo Shrikes

These are Shrike-like birds, chiefly distinguished from the true Shrikes by their larger build and in having the feathers of the rump stiffened and spiny. Formerly this family was designated as PERICROCOTIDAE. They are insectivorous birds with strong, hooked beaks notched just behind the tip as in the Shrikes, and are almost exclusively arboreal in their habit, never descending to the ground. Cuckoo Shrikes are rather dull coloured, but Minivets are among the most brilliantly coloured birds. The eggs of these birds are usually spotted and are laid in open nests.

THE ORANGE OR SCARLET MINIVET

The Orange or Scarlet Minivet (*Pericrocotus flammeus speciosus*) is essentially a hill species and is purely arboreal in its habits. It keeps to well wooded country and evergreen forest and is found from the plains up to an altitude of 6,000 feet in the hills. In winter it is usually seen in small flocks of about thirty or more. It is generally found actively flitting about, hunting for insects among the upper branches of trees. It feeds on insects and their larvae and sometimes catches insects on the wing like a Flycatcher. It has a melodious whistling song which it utters constantly. Two specimens from Shevroys and one from Sirumalais are exhibited.

THE SMALL MINIVET

The Small Minivet (*Pericrocotus cinnamomeus peregrinus*) is another common species of Minivet found throughout India, Burma and Ceylon on the plains and lower elevations on the hills. It frequents well wooded country, especially cultivation and the vicinity of houses and villages, often entering gardens and groves. It is exclusively arboreal and is usually seen in large flocks in winter. It feeds on insects and insect larvae, hunting for them among the upper branches of trees, like the preceding species.

THE BLACK-HEADED CUCKOO SHRIKE

The Black-headed Cuckoo Shrike (*Coracina melanoptera sykesi*) is found practically throughout India except the Northwestern parts, and occurs usually in pairs in lightly wooded, open country from the plains up to an altitude of about 4,000 feet in the hills. It is commonly seen in association with mixed hunting parties of other insectivorous birds and prefers to haunt the branches of large trees such as mango, tamarind or neem trees. It feeds mainly on insects, but eats also berries. It is about the size of a Bulbul, the male being ashy grey with black head, wings and tail, while in the female the head is grey and the under parts are barred with black and white. A female specimen from Madras and a male one from the Shevroys are exhibited.

THE LARGE INDIAN CUCKOO SHRIKE

The Large Indian Cuckoo Shrike (*Coracina novaehollandiae macei*) is found throughout the Indian Union except in Rajasthan and the Punjab. It is arboreal in habits and is usually seen in small parties in fairly well wooded regions both in the plains and on the hills. It prefers groves of trees around villages and cultivated areas. They are noisy birds and constantly utter their harsh, grating call as they fly from one tree to another in pairs or in small groups, searching for insects. Their food consists of large insects and also berries and wild figs.

Family ARTAMIDAE

The Swallow Shrikes

This is a small family of Shrike-like birds of doubtful affinities. They are mostly confined to the Australian Region and only one species occurs in India and Ceylon. They are insectivorous and usually found in large flocks. They capture the insects on the wing like Flycatchers, and have the habit of soaring high in the skies. They are dull coloured birds with a rather large head, strong and conical pale blue beaks and long, pointed wings.

THE ASHY SWALLOW SHRIKE

The Ashy Swallow Shrike (*Artamus fuscus*) is the only species of this family occurring in India. This is a gregarious bird, breeding in colonies and usually inhabiting open country where they often feed and rest in large parties huddled up together on the bare branches of trees. They are especially common in palmyrah palms or tall dead trees from the tops of which they keep a watch for insects. While perching, they constantly move their tail up and down. They feed on moths, butterflies and other winged insects which they capture on the wing in the same way as bee eaters do. They are entirely arboreal and never descend to the ground. They have a harsh call resembling that of the shrikes in general.

Family DICRURIDAE

The Drongos

The Drongos constitute a family of medium-sized, rather slender-bodied birds with a more or less glossy, black plumage and a rather long, deeply forked tail. They are mainly arboreal in their habits possessing a strong flight and are insectivorous, taking most of their food on the wing—mostly during short and quick sallies from a perch. The bill is stout and strong, while the legs are short. Drongos are noted for their courage and boldness in driving away crows, hawks and other birds; hence the popular name "King Crows" sometimes applied to some of these species. They are rather noisy birds and many species often mimic the calls of other birds.

THE BLACK DRONGO

The Black Drongo (*Dicrurus adsimilis macrocercus*) is popularly called the "King Crow" on account of its daring habits and is one of the most familiar birds of the country side. It is a slim, glossy black bird with a long, deeply forked tail, usually found singly in the open country side, especially around cultivated areas. It is one of the bravest of Indian birds, chasing away other birds that might intrude into the neighbourhood of its nest or young. Drongos may be commonly seen in attendance on grazing

cattle in order to get at the insects disturbed by their feet. The Black Drongo is highly beneficial to agriculture on account of the large quantities of injurious insects it destroys.

THE WHITE-BELLIED DRONGO

The White-bellied Drongo (*Dicrurus caerulescens*) is a closely related species, glossy indigo-bluish black above and with white belly and under tail feathers and long, deeply forked tail. It inhabits well wooded deciduous forest and open country, being often found in bamboo and thinly forested areas and near plantations and cultivations, where there are plenty of trees. In its diet and general habits it resembles the Black Drongo, and is often seen in mixed hunting parties of insectivorous birds in the forest, swooping gracefully after insects and catching them on the wing.

THE INDIAN GREY DRONGO

The Indian Grey Drongo (*Dicrurus leucophaeus longicaudatus*) closely resembles the Black Drongo, but is decidedly more greyish and has a longer tail, and prefers well wooded regions in the hills as well as open, rugged country, including gardens in villages and towns. Only an egg of this species is exhibited in this Gallery.

THE SOUTHERN BRONZED DRONGO

The Southern Bronzed Drongo (*Dicrurus aeneus aeneus*) has a more glossy plumage and a more depressed and flattened bill than in the preceding species of Drongos. The whole plumage is black, glossed with bronze and showing green or lilac-coloured metallic reflections. This species is the southern race of the Bronzed Drongo and is found over the whole of Western India from South Travancore up to Bombay and also in Orissa, West Bengal and parts of Assam in the east. It inhabits thickly forested regions both in the plains and on the hills, but prefers rather hilly country especially where the ground is rough and broken and traversed by ravines. Specimens from Wynaad and Shevroys are exhibited in this Gallery.

THE INDIAN HAIR-CRESTED DRONGO

The Indian Hair-crested Drongo (*Dicrurus hottentottus hottentottus*) is a rather heavily built species of Drongo, with an almost square tail and a tuft of long hair springing from the forehead—hence the name "Hair-crested Drongo". It is essentially a bird of the forests, usually inhabiting rough, broken country in the lower elevations of the hills up to about 3,000 feet. Its fight is stronger and less conspicuously dipping than in most species of Drongos. It is usually found singly, but where there is an abundance of insect food, they assemble in large flocks. They feed on insects, mostly among flowers and foliage, but also sometimes catch them on the wing.

THE LARGE RACKET-TAILED DRONGO

The Large Racket-tailed Drongo (*Dicrurus paradiseus paradiseus*) is the largest of the species of Drongos occurring in South India and is the South Indian race of the typical form of the Large Racket-tailed Drongo which has a wide distribution, with several other similar geographical races ranging over Siam, Burma, Assam, Andamans and Nicobars and Ceylon. It is a large, glossy black, rather heavily built Drongo with the feathers of the forehead prolonged into a handsome crest, and with two long, wire-like streamers in the tail, the ends of which are dilated into spatula-shaped tips. It inhabits forests, preferably the moist deciduous jungles, both in the hills and on the plains. It is particularly common in teak and bamboo plantations in the foothills of the Western Ghats. It is a very noisy bird, often mimicking the calls of other birds and is often seen in mixed hunting parties of insectivorous birds, being more sociable than other species of Drongos. Its food consists of a large variety of insects including wasps, beetles, butterflies, bees, locusts and their larvae. Specimens from Wynaad, Madras and the Guindy Park are exhibited.

Family IRENIDAE

The Bluebirds

This is a small family, comprising only a single genus, *Irena*, which is confined to South India and Ceylon, Assam, Indo-China and the Malayan Region. It includes active,

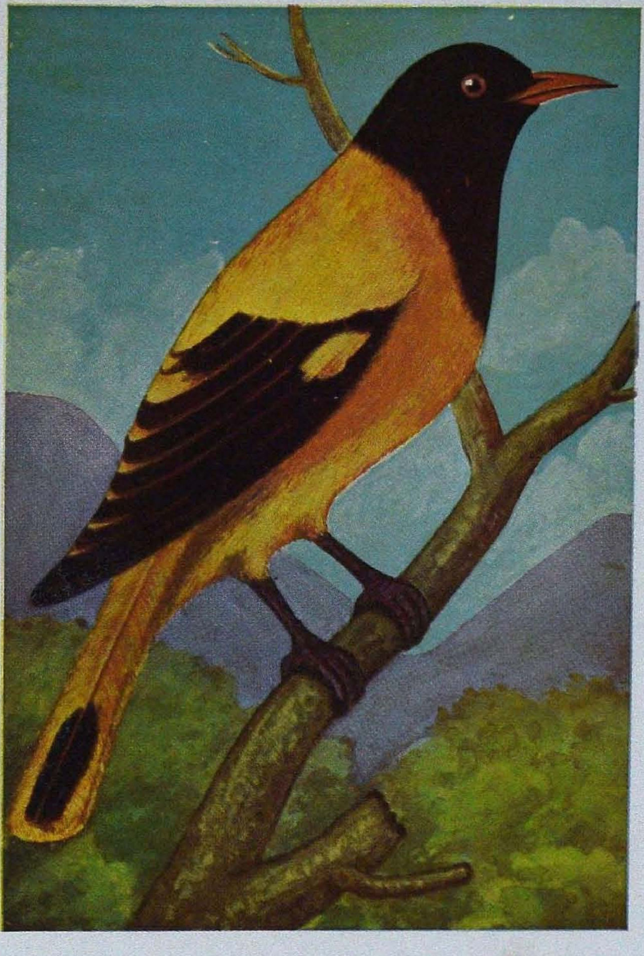


Fig. 9. Oriolus xanthornus xanthornus :
The Indian Black-Headed Oriole.

lively birds resembling somewhat the Orioles in form and size and popularly known as the Fairy Bluebirds. The adult males are brightly coloured, being glistening blue above and deep velvety black on the under parts. The females and young are dull greenish blue. They are arboreal in habits and feed mainly on fruits.

THE FAIRY BLUEBIRD

The Fairy Bluebird (*Irena puella puella*) is an attractive little bird about the size of a Black-headed Oriole or a little larger, inhabiting the evergreen forests at low elevations, and sometimes ascending to 4,000 or even 5,000 feet. The male is beautiful glistening blue above and dense velvety black on the face, throat and most of the under parts, while the female is dull greenish blue throughout, except the flight feathers which are more brownish. In South India, it is common in the forested hill ranges up to an altitude of about 5,000 feet. It is an active bird, usually found in pairs or in small parties, frequenting forest on the banks of hill streams and similar situations and feeding almost entirely on a variety of fruits such as wild figs, banyan, etc. It is shy and retiring in its dispostion and is generally seen on the tops of the higher trees. It has a loud but pleasant call. Male and female specimens from the Nilgiris and another female specimen from South Coorg are exhibited.

Family CRIOLIDAE

The Orioles

The Orioles are medium-sized, brightly coloured perching birds with a predominantly yellow and black colouration and found mainly in the tropical regions of Africa, Asia and Australia. They are strictly arboreal in their habits and feed both on insects and fruit. Their flight is strong. They are often seen singly or in pairs frequenting gardens, groves and parks, but they also occur in forested areas. They are among the most brilliantly coloured of the perching birds and are easily recognized by their rich yellow and black plumage. The nests of Orioles are hammock-shaped and suspended among the foliage and their eggs are spotted.

THE INDIAN GOLDEN ORIOLE

The Indian Golden Oriole (*Oriolus oriolus kundoo*) or Mango Bird as it is sometimes popularly known, is found practically throughout India except in Assam. It inhabits open, but well wooded country, and is strictly arboreal in its habits, never descending to the ground or to the undergrowth beneath the trees. It is shy and secretive and prefers the dense foliage of large trees in groves and gardens. Its food consists chiefly of fruits and berries, though insects are also eaten. Its flight is strong, powerful and dipping, and it has a loud, mellow, pleasant, whistling call. The male is of a gorgeous, golden yellow colour with black wings and tail, while the female is greenish yellow with dark wings and tail. Both male and female specimens are exhibited.

THE INDIAN BLACK-HEADED ORIOLE

The Indian Black-naped Oriole (*Oriolus chinensis xanthornus*) is also brilliant golden yellow in colour, but is distinguished from the preceding species by the head, throat and upper breast being jet black. It is also arboreal and very similar in its habits to the Golden Oriole, being partial to groves and gardens and is active, often indulging in aerial antics, flying swiftly from tree to tree. It feeds on insects, berries, fruits and the nectar in flowers and has a variety of melodious calls. Sometimes it utters a harsh note, not unlike that of a Tree Pie.

THE INDIAN BLACK-NAPED ORIOLE

The Indian Black-naped Oriole (*Oriolus chinensis diffusus*) is slightly larger than the Black-headed Oriole and is coloured much like the Indian Golden Oriole except for a black band passing from eye to eye across the back of the head. It is a shy species of a retiring disposition and is much rarer than the two preceding species, being a forest-loving species. It is a migratory species, breeding in China during summer and visiting India and Ceylon during winter. In its general habits it resembles the other common species of Orioles.

Family EULABETIDAE

The Grackles

The Grackles or Hill Mynahs constitute a group of birds which closely resemble the Starlings and Mynahs, but are slightly larger than the ordinary species of Mynahs. They are chiefly distinguished from the true Mynahs by the presence of a pair of fleshy, yellow wattles on the nape. They have mostly a dark plumage, brilliantly glossed with metallic reflections. Their bill is stout and somewhat curved. They are arboreal in habits, feeding mostly on wild fruit. They lay their eggs in holes in tree trunks. Their call resembles a shrill, whistling sound, and in captivity they often mimic the human voice. They are often kept as pets.

This family is represented only by a single common Indian species, the Grackle or Hill Mynah (*Eulabes religiosa*) of which two specimens, a male and a female, are exhibited.

THE SOUTHERN GRACKLE OR HILL MYNAH

The Southern Grackle or Hill Mynah (*Gracula religiosa indica*) is a glossy jet black Mynah with a prominent white patch on its wings, and bright orange yellow wattles on the head. They are arboreal and often found in flocks or in pairs in well wooded country and around cultivated regions. They are active birds, usually frequenting the tree tops and often found in company with green pigeons and other fruit-eating birds, feeding on wild fruit. Their diet is mainy frugivorous, but they also eat termites, grasshoppers, etc. Their call consists of a loud, sharp, shrieking noise, usually uttered at dusk from their favourite perches on bare tops of dead trees, stumps, etc. They nest in natural hollows high up on the trunks of trees in forests. The male specimen exhibited is from South Coorg.

Family STURNIDAE

The Starlings and Mynahs

This is a large family of perching birds confined to the Old World, including both arboreal and terrestrial

forms. Some species are migratory while others are resident birds, but nearly all of them are gregarious, occurring in smaller or larger flocks. They are much less strictly arboreal than the Grackles and many species walk with ease on the ground, obtaining a greater portion of their food from the ground. The bill is moderately stout and only very slightly curved, and in Starlings it is slender, though strong. The wings are long and pointed and the feet are large. This family includes both insectivorous and fruit-eating birds. Starlings and Mynahs nest in holes in trees or in buildings and lay unspotted eggs.

THE ROSE-COLOURED STARLING OR THE ROSY PASTOR

The Rose-coloured Starling or the Rosy Pastor (*Sturnus roseus*) is a migratory bird and is one of the most familiar and earliest among the winter visitors to India, arriving in India as early as July or August and leaving again by April. In full breeding plumage, it is of a delicate, rosy-pink colour, with glossy black head, wings and tail and with a characteristic, pointed crest on the crown of the head. This species is extremely gregarious and in winter it occurs all over India but is more abundant in the Deccan and north-western parts than in Southern India. They are commonly seen in large flocks numbering nearly 500 or more individuals around cultivated fields where they cause considerable damage to the ripening grains. But since they also feed on locusts, they are at the same time beneficial to that extent. In addition, they feed on several types of wild fruit and berries. They frequently roost together in large flocks in trees and the males have a harsh or more melodious warbling song. A male and a female specimen from South Coorg are exhibited.

THE GREY-HEADED MYNAH

The Grey-headed Mynah (*Sturnus malabaricus malabaricus*) is a rather small-sized Mynah with a characteristic brownish silvery grey plumage above and rusty brown below. It is mostly arboreal in habits and occurs in flocks in sparsely wooded country and in the

vicinity of teak plantations. It is often found in flocks frequenting the tops of trees and is rather noisy, uttering its chattering call frequently, although it has also a more pleasant call sometimes. Its flight is swift and direct and at times the flocks descend from the trees and feed on the ground. Its food consists of insects, berries, wild figs and the nectar of flowers.

FINSCH'S STARLING

Finsch's Starling (*Sturnus vulgaris potaratskyi*) is one of the several races of the Starling—a bird of very wide distribution with an iridescent, highly glossy plumage. The head and neck in the present race are purplish, the whole of the upper plumage greenish and the abdomen purple-blue. It is a winter visitor to India, breeding in Siberia and Central Asia in summer and arriving in India early in October. They leave again for their summer quarters by the end of March. They usually inhabit well watered localities and often prefer the neighbourhood of streams and rivers. Their habits are much the same as those of other Starlings.

THE BLACK-HEADED MYNAH OR BRAHMINY MYNAH

The Black-headed Mynah or Brahminy Mynah (*Sturnus pagodorum*) is grey above and reddish fawn below, with a glossy black crown and long crest. It is a familiar bird found practically all over India, except in the very dry regions as well as in the more humid evergreen forests. They are less strictly arboreal than the Grey-headed Mynah and frequent open, well cultivated regions with plenty of trees and moist grassland, often entering gardens in towns and villages; they are also frequently seen following grazing cattle and feeding on the insects disturbed by the cattle. They are omnivorous, feeding on wild figs and berries as well as on insects. They spend much of their time on the ground, feeding in company with other species of Mynahs and Starlings. They have a variety of chattering calls, besides a pleasing, warbling song, uttered by the male during the breeding season. They are tame and confiding in their habits and are often found

in the vicinity of human habitations. Both male and female specimens and the nest and egg of this species are exhibited.

THE INDIAN PIED MYNAH

The Indian Pied Mynah (*Sturnus contra contra*) is dis tinguished by its conspicuous pied black and white plum. age. It is a common and widely distributed resident species found in the plains, and is essentially a bird of open cultivated fields, usually occurring in small parties, hunting for insects in grassland. It is also frequently seen in attendance on grazing cattle feeding on the grasshoppers and other insects disturbed by them. In addition to insects, it also feeds on fruits, berries and ripened grain. Like the Common Mynah, the Pied Mynah roosts in immense noisy flocks in groves of trees. A pair of specimens of this species (male and female) from Godavary are exhibited.

THE COMMON MYNAH

The Common Mynah (*Acridotheres tristis*) is one of the commonest and most familiar of Indian birds found around human habitations. Its neat, dark brown plumage, bright yellow bill and legs and the yellow, bare skin around the eyes are quite characteristic. A large white patch in the wing is conspicuous when the bird flies. It is found everywhere except in heavy forest, and is particularly common in fields and gardens. It is omnivorous, feeding on fruits, insects, worms, etc., and often follows the plough for earthworms and grazing cattle for the grasshoppers disturbed by them. It is sociable in disposition and is a favourite cage bird, often making an engaging pet. It has a variety of sharp, squeaking and chattering calls. Outside the breeding season these Mynahs often roost in large flocks at their favourite roosts where they gather towards the evening often from considerable distances. Male and female specimens and an egg of this species are exhibited.

THE BANK MYNAH

The Bank Mynah (*Acridotheres ginginianus*) closely resembles the Common Mynah, but is pale bluish grey instead of being dark brown, and the naked area around the

eye is brick red instead of being yellow. It is quite similar in its habits to the Common Mynah and often occurs in flocks in open country and around human dwellings. It may be frequently seen in crowded market places and on railway station platforms feeding on scraps of food thrown on the ground. But it is essentially a bird of the open countryside and cultivated fields. It is more sociable in its habits than the Common Mynah, not only feeding and roosting in flocks, but also breeding in colonies. It is known as the Bank Mynah because it builds its nests almost exclusively in earthern banks and cliffs in holes which it excavates for itself, always near water.

THE INDIAN JUNGLE MYNAH

The Indian Jungle Mynah (*Acridotheres fuscus fuscus*) is essentially a bird of the forests, being mainly found in the hills and distinguished from the Common and Bank Mynahs by its darker plumage, the absence of a bare wattle on the face and by the presence of a tuft of erect feathers above the nostrils. The top and sides of the head are black and the remainder of the upper plumage is dark reddish brown, and the wings are black, with a large white patch at the base of the outer flight feathers. It is a shy forest bird mostly found in the hills up to an altitude of 5,000 feet, but also occurs in well wooded country around villages and in light forest and on the fringes of heavy, evergreen forests. In its general habits it resembles the Common Mynah closely, but it is more shy and retiring, and less noisy and gregarious. Specimens from the Shevroys and the Nilgiris are exhibited.

Family PLOCEIDAE

The Weaver Birds, Munias and Sparrows.

This family comprises a large number of species of small birds such as the Weaver birds, Munias and Sparrows. It is closely related to the family of Finches (Fringillidae) in which the Sparrows were included till recently. But it has now been established that the Sparrows are more closely related to the Munias and Weaver birds and are hence more appropriately placed in the family Ploceidae. The birds of the family Ploceidae are nearly all highly

gregarious and are both arboreal and terrestrial, hunting for their food mostly on the ground, but also spending a great deal of their time on trees and bushes. They have short, stout, strong, concial beaks adapted for cracking hard seeds and grains on which they mainly feed. The Weaver birds are remarkable for their elaborate, flask-shaped nests which they weave out of grass strips and fibres.

THE BAYA OR WEAVER BIRD

The Baya or Weaver Bird (*Ploceus philippinus philippinus*) is very similar to a House Sparrow in colour, size and appearance, and is well known for its wonderful, retort-shaped hanging nests. The Baya is essentially a bird of open cultivated country. They go about in flocks, gleaning paddy and other seeds in cultivated fields, and often cause considerable damage to ripening paddy crops. In addition to grain and seeds, they also feed on insects. The Baya is chiefly noted for its remarkable flask-shaped hanging nests, which are compactly woven with strips of grass or paddy leaf. and have a small quantity of mud stuck inside, near the egg-chamber. These nests are generally suspended on trees in groups or colonies, each group normally consisting of about ten to a dozen nests, but large colonies may be composed of even fifty to hundred nests. extending over several adjacent trees. Most of the nest-building is done by the males. There is a habitat group showing a colony of these nests and also two eggs of this species exhibited separately.

THE STRIATED OR THE STREAKED WEAVER BIRD

The Striated or the Streaked Weaver Bird (*Ploceus manyar flaviceps*) is distinguished from the Baya by the breast plumage being fulvous brown, boldly streaked with black. In breeding males, the crown of the head is yellow. It occurs in flocks in swampy regions, especially among tall grass and reeds. In its habits it closely resembles the Baya, except that it prefers to haunt swampy areas and margins of tanks overgrown with tall grass, reeds and bulrushes. It feeds on seeds and ripening grain and often proves to be a pest in fields of ripening paddy.

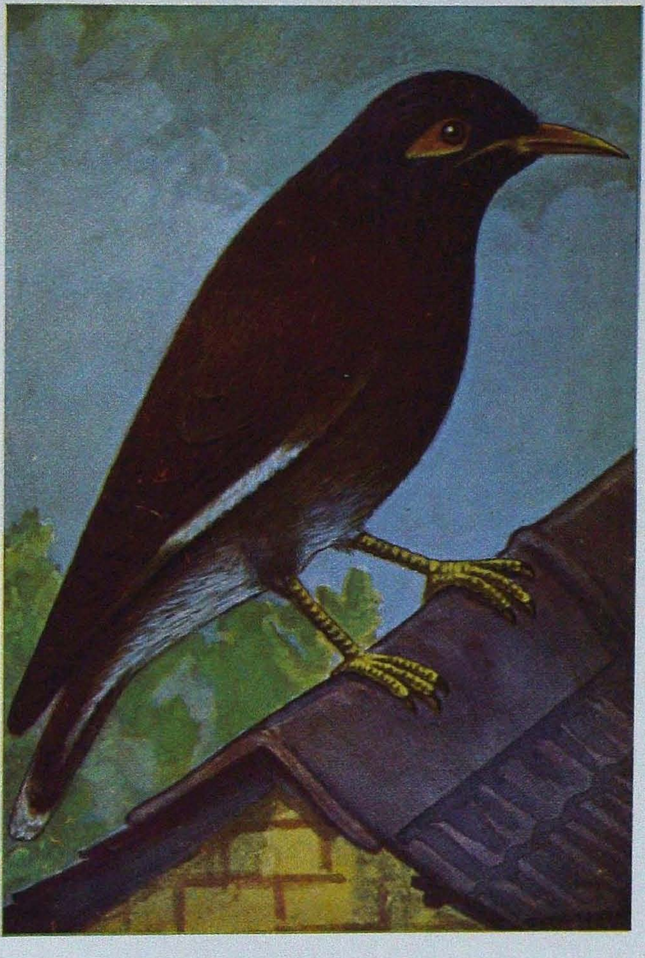


Fig. 10. Acridotheres tristis :
The Common Myna.

Fig. 11. Acridotheres ginginiatus :

The Bank Mynah.

Fig. 12. Ploceus philippinus philippinus :
The Baya or Weaver Bird.

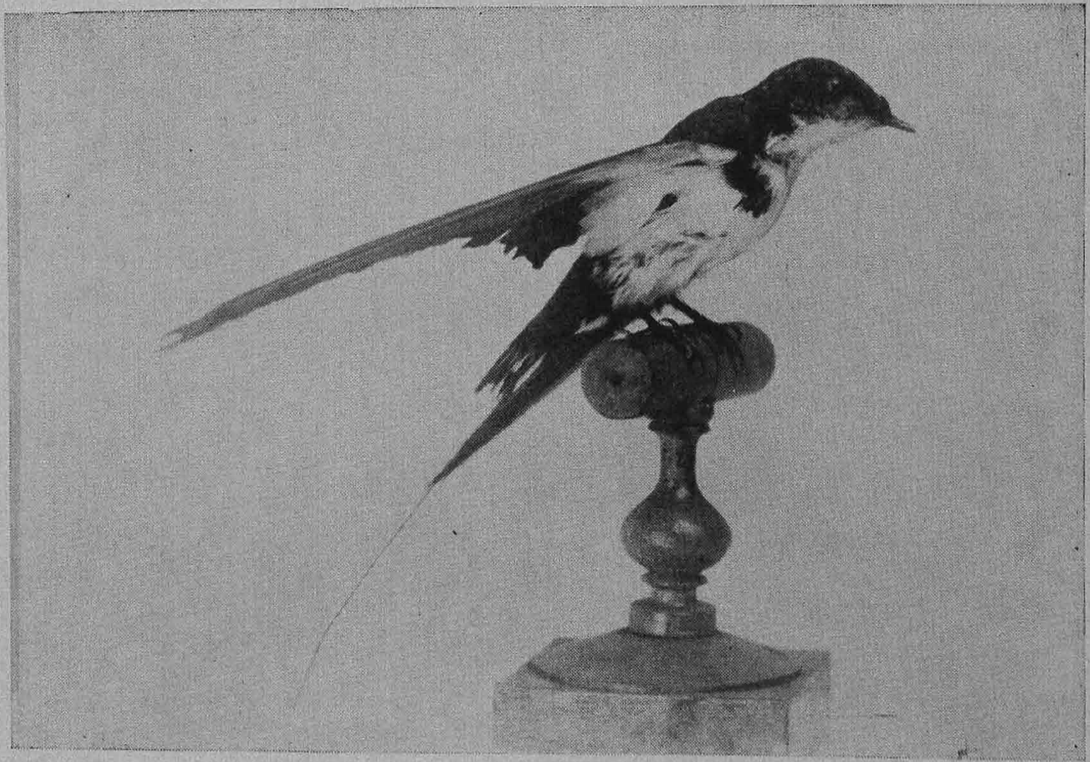


Fig. 13. Hirundo smithii filifera :
The Indian Wire-Tailed Swallow.

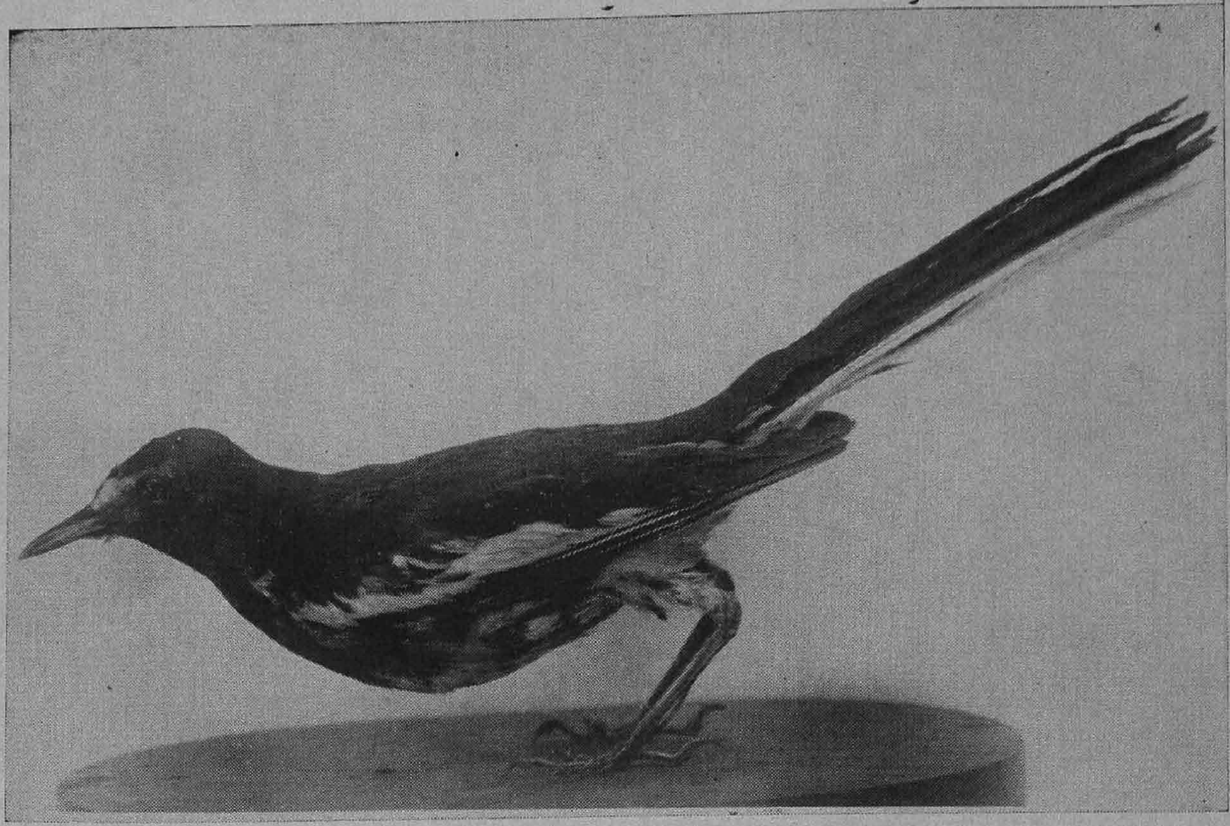


Fig. 14. *Motacilla maderaspatensis*:
The Large Pied Wagtail.

Several species of Munias belonging to the genera *Lonchura, Estrilda* and *Carpodacus,* commonly occurring in South India, are represented in this Gallery. Munias are small, sparrow-like birds with rather thick, heavy, conical bills, either with rounded or pointed tails, usually found in flocks. The nest of these Munias is usually a globular structure made of grass blades.

THE BLACK-HEADED MUNIA

The Black-headed Munia (*Lonchura malacca malacca*) is a small, chestnut-coloured bird with the head, upper breast and vent coloured black. It has a heavy, short, conical bill. It occurs usually in flocks on marshy ground and among tall grass. It prefers swampy regions overgrown with grass and reeds, especially near paddy fields. Besides paddy, it feeds on a variety of grass seeds. It has a rather undulating flight. On account of its handsome colouration it is often valued as a cage bird.

THE WHITE-BACKED MUNIA

The White-backed Munia (*Lonchura striata striata*) is a small, black and white Munia with a heavy, conical, short, bluish bill and rather narrow, pointed, wedge-shaped tail. It is usually found in small family parties or even in larger flocks inhabiting open, cultivated country, gardens and scrub jungle. They feed on grass seeds, including paddy, and always keep close together when feeding.

THE WHITE-THROATED MUNIA

The White-throated Munia (*Lonchura malabarica malabarica*) is a small bird of rather slender build, smaller than a sparrow, with a rather long, pointed tail, a drab, dull, earthy brown plumage and thick bill. It inhabits the dry, open, cultivated regions as well as dry scrub jungle, but as a rule it is absent from the more humid regions. It is commonly seen in flocks of ten or twelve or even more. In its habits, food, etc., it does not differ appreciably from the other species of Munias.

THE SPOTTED MUNIA

The Spotted Munia (*Lonchura punctulata punctulata*) is also smaller than the Sparrow, and is distinguished from the other species of Munias by the lower parts being white, speckled with black in the adult breeding plumage. It is found in large flocks, sometimes numbering up to 200 individuals or more, usually in open, cultivated areas. They feed mostly on the ground, on grass seeds, etc., but they also eat winged termites sometimes. Both male and female specimens and a nest of this species are exhibited.

THE INDIAN RED MUNIA OR WAXBILL

The Indian Red Munia or Waxbill (*Estrilda amandava*, formerly known as *Amandeva amandeva*) is a tiny bird, smaller than a sparrow, with a brownish plumage, sparsely stippled with white, a red bill and crimson rump. It is usually found in flocks all over the more well watered areas, especially among reeds and grass, on the plains as well as in the hills up to an altitude of 6,000 feet. It is abundant in wet grassland and thin scrub jungle showing a marked preference for humid localities. It is a popular cage bird, large numbers of which may be frequently seen kept for sale in bird markets. Both male and female with an egg are exhibited.

THE COMMON INDIAN, OR HODGSON'S ROSE-FINCH

The Common Indian, or Hodgson's Rose-finch (*Carpodacus erythrinus roseatus*) is a widely distributed species, commonly occurring in flocks in trees and crops in well wooded country and cultivated fields. The male is rose-coloured, while the female is brownish. Both have the heavy, conical bill typical of Finches and the tail is slightly forked. The Indian race, *roseatus* exhibited in this Gallery is a migratory form, breeding in the Himalayas at very high altitudes (10,000 feet or even higher) during summer. In winter it is found practically throughout India. They feed on berries, wild figs, cherries, bamboo seeds and the nectar of flowers, thus helping in cross-pollination. They

avoid heavy forest and often enter gardens and the vicinity of villages. A single female specimen from Kurnool District is exhibited.

THE YELLOW-THROATED SPARROW

The Yellow-throated Sparrow (*Petronia xanthocollis xanthocollis*) is a pale, brownish grey sparrow with a chestnut-coloured patch on the shoulder. The male has a characteristic bright yellow patch on the throat. This Sparrow occurs practically throughout India in pairs or in flocks in open country and cultivated areas. It is essentially arboreal in its habits and usually haunts the higher branches of trees, constantly uttering its characteristic chirping call. It feeds on seeds, fallen grains, berries, the nectar of flowers and on insects.

THE HOUSE SPARROW

The House Sparrow (*Passer domesticus*) is one of the commonest and most familiar birds, almost invariably found in and around human dwellings. It is a confirmed commensal of man, making its nest in holes in ceilings or niches and crevices in the wall in human habitations, and constantly uttering its characteristic chirping call. Sometimes it is gregarious, collecting in large flocks and causing considerable damage to crops. It is omnivorous, feeding on insects, fruit buds, nectar and scraps of kitchen refuse, etc.

Family HIRUNDINIDAE

The Swallows

The Swallows constitute a distinct family of small, Passerine birds with long, narrow, pointed wings and a forked tail adapted for an active aerial life and noted for their remarkable ability to pursue winged insects in the air in continuous flight. Many species of Swallows are migratory, travelling thousands of miles from their summer breeding quarters to their winter quarters in the south. They are usually gregarious, perching on telegraph wires and bare branches of trees, without foliage.

They build nests composed of pellets of mud and attached to the inside of caves, culverts and eaves of buildings.

THE DUSKY CRAG MARTIN

The Dusky Crag Martin (*Hirundo concolor concolor*) is a small species of swallow, with a dark, sooty brown plumage and a short, square tail, and wings like those of a swallow. It is closely related to the Swallows and generally haunts cliffs, rocky caves, crags, old riuned forts and buildings. It is insectivorous, usually hawking for insects such as gnats, mosquitoes and other tiny, winged insects. Unlike the Swallows, it is never very abundant and does not congregate in large flocks. It is found practically throughout India, from the foot of the Himalayas, down to the Nilgiris in the South, and is not a migratory species.

Several species of Swallows are represented in this Gallery, some by entire mounted specimens, and one or two species by their eggs only.

THE COMMON SWALLOW

The Common Swallow (*Hirundo rustica rustica*) is a beautiful bird with a glossy, steel blue or purplish blue upper plumage and a deeply forked tail. It is gregarious, and is migratory, being found throughout India in winter. It is usually seen huddled together in rows upon telegraph wires during the winter when they arrive in large numbers. They generally hawk for winged insects in the air, their flight being swift and graceful. The deeply forked tail contributes greatly to the agility and dexterity of their flight. The mud nest is reinforced by grass.

THE RED-RUMPED OR STRIATED SWALLOW

The Red-rumped or Striated Swallow (*Hirundo daurica*) is distinguished from the Common Swallow by the under parts being fulvous white, finely streaked with brown, and by the presence of a chestnut half collar on the hind neck and a chestnut rump conspicuous in flight. It occurs either in pairs or in small parties hawking for insects on the wing in the vicinity of cliffs, ancient forts and ruined buildings, etc., often in association with the Common

Swallow, the Crag Martin and the Swift. There are several races of this species, of which the most widely occurring resident race is Syke's Striated Swallow (*Hirundo daurica erythropygia*) represented in this Gallery by a mounted specimen. These are very familiar birds preferring the vicinity of towns and villages, and in India, this species is generally found around mosques and other buildings, and also in the vicinity of walls and bridges. Its flight is relatively slow. Another race, Hidgson's Striated Swallow (*Hirundo daurica nepalensis*) breeding in the Himalayas and found throughout Northern India during the winter, is represented only by a specimen of its egg.

THE NILGIRI HOUSE SWALLOW

The Nilgiri House Swallow (*Hirundo tahitica domicola*) is essentially a bird of the hills, being found in the higher elevations of the hills from about 2,000 to 9,000 feet. It occurs in the hills of Southern India from the Nilgiris to Travancore, and also extends to Ceylon. It is one of the most familiar and best known species of Swallow in Southern India, being a resident species, wherever it occurs. Its flight is easy and graceful, and it constantly hawks for insects on the wing like the other species of Swallows. It is represented in this Gallery only by an egg.

THE INDIAN WIRE-TAILED SWALLOW

The Indian Wire-tailed Swallow (*Hirundo smithii filifera*) is easily distinguished from other species of Swallows by its glossy white underparts and two long, fine, wire-like tail feathers. The upper plumage is glossy steel blue with a chestnut coloured patch over the head. This species is found practically throughout India from the Himalayas down to the Nilgiris and is mainly a resident species occurring in pairs or small parties in open cultivated areas. Its habits are much the same as those of other Swallows but it is as a rule more confined to the vicinity of streams, tanks and reservoirs. A male specimen from Wynaad is exhibited.

THE INDIAN CLIFF SWALLOW

The Indian Cliff Swallow (*Hirundo fluvicola*) is another widely distributed species, occurring on the plains and is

highly gregarious, nesting in colonies. Clusters of its mud nests may be commonly seen in the vicinity of water under bridges, culverts and archways. Its plumage is glossy steel blue above, and white below, boldly streaked with brown on the throat and upper portion of the breast, the crown of the head being dull chestnut-coloured. It is mainly a resident bird or a local migrant, being extremely sociable, occurring in large flocks which usually hawk about for insects in the vicinity of water, often in association with other species of Swallows and Sand-martins.

Family MOTACILLIDAE

Wagtails and Pipits

This is a widely distributed family of small Passerine birds with elegant, slenderly built body, and mostly terrestrial in habit. .They are insectivorous birds with straight, slender bills and somewhat elongated wings and fairly long tail feathers. In many species, especially the Pipits, the hind claw is elongated and curved. They usually live singly or in pairs or small flocks spending most of their time on the ground, hopping or running about and feeding on insects. Pipits are mostly dull coloured, while Wagtails are of slimmer build than the Pipits, and, as a rule, of brighter colours. Wagtails have the habit of constantly jerking their tails up and down. Many species are migratorty. The eggs of these birds are all spotted.

About four species of Wagtails of the genus *Motacilla* and four or five species of Pipits of the genus *Anthus* are exhibited in this Gallery.

THE WHITE WAGTAIL

The White Wagtail (*Motacilla alba dukhunensis*) is a small, slim, bird with a longish tail and wings and with a characteristic black, white and grey plumage. It is a winter visitor, arriving in India by about September or October and returning North to their summer quarters by about March or April. It is a sociable bird usually found in large flocks, often in association with other species. They are generally common on lawns, meadows, ploughed fields and maidans, where they may be seen running about swiftly on the ground, constantly jerking their tails up and down

and feeding on tiny insects. They roost at nights in large flocks in big trees and on beds of reeds, etc. in company with other species of Wagtails and Swallows. A male and a female specimen from Kurnool are exhibited.

THE LARGE, PIED WAGTAIL

The Large, Pied Wagtail (*Motacilla maderaspatensis*) is a large species of Wagtail with a typical, black-and-white plumage. This is a resident bird occurring throughout India except Assam, and may be seen either singly or in pairs or small family parties near tanks and streams. It generally frequents the vicinity of clear, running streams with a shingly or rocky bottom, interspersed with small, grass-covered islets. It feeds along the edges of the water, incessantly wagging its tail up and down while searching for insects. It is usually tame and confiding in its habits and has a variety of pleasant whistling calls. A specimen from Madras and an egg of this species are exhibited.

THE EASTERN GREY WAGTAIL

The Eastern Grey Wagtail (*Motacilla caspica caspica*) is a widely distributed species mostly found in the vicinity of mountain streams in Europe and North Asia and migrating southwards to Africa and Southern Asia in winter, when it is found throughout the plains of India. It is essentially a bird of the mountain streams and rivers and is usually a solitary bird often seen running about briskly. chasing tiny insects on the ground near hill streams and rivulets. It is distinguished from the other species of Wagtails by its unusually long tail and the characteristic grey and yellow colour pattern of its plumage. The tail is constantly wagged up and down. It flies low over the ground in a series of undulating curves, exposing the sulphur-yellow under plumage conspicuously. A specimen from Shevroy Hills is exhibited.

THE YELLOW-HEADED WAGTAIL

The Yellow-headed Wagtail (*Motacilla citreola citreola*) is essentially a bird of the marshland and grassy swamps,

always preferring the vicinity of water. In summer, the entire head and lower plumage in the male are bright yellow, while in winter, both the male and the female have the crown and the back grey and the under parts yellowish white. It is more gregarious than the Eastern Grey Wagtail and flocks of them may be seen floating on lotus leaves and other aquatic vegetation in tanks and feeding on tiny insects. Its general habits are the same as those of the other Wagtails. It is a migratory species breeding in Eastern Russia and Mongolia in summer, and occurring all over India as far south as Travancore in winter. A male specimen from Kistna District is exhibited.

THE INDIAN BLUE-HEADED WAGTAIL

The Indian Blue-headed Wagtail (*Motacilla flava beema*) is another migratory species of Wagtail, visiting India during winter, arriving by August or September, and leaving again in April or early May. It is distinguished by its head being light bluish grey and the back bright olive green. It is extremely common in Northern India during winter when they often collect in large flocks. A single female specimen from Kistna District is exhibited.

THE FOREST WAGTAIL

The Forest Wagtail (*Motacilla indica*) is essentially a bird of the forests being found only in evergreen forest where it usually frequents riversides, forest glades and pathways. It has a striking colour pattern with an oilve green upper plumage and long, blackish brown tail. They are generally found in pairs, feeding on small slugs, snails, worms and small insects. They are very quick in their movements and flight, and constantly wag their tails, but unlike the other Wagtails, it wags its tail from side to side and not up and down.

THE INDIAN PIPIT OR THE PADDY-FIELD PIPIT

The Indian Pipit or the Paddy-field Pipit (*Anthus novaeseelandiae rufulus*) is very similar to the female House Sparrow in colouration and appearance, being dark brown above, pale fulvous below and streaked with brown on the breast. It is usually found in open country, cultivated

fields with low crops, stubble fields and grassland, where it may be often seen in pairs, running about briskly, wagging its tail up and down like a Wagtail and feeding on weevils and other small insects. Its flight is undulating. Specimens from Tittimatti, South Coorg and Madras are exhibited.

RICHARD'S PIPIT

Richard's Pipit (*Anthus novaeseelandiae richardi*), a closely allied race of the typical Indian Pipit, is a migratory bird, breeding in the bush-covered and open plains of Siberia and visiting India in winter. It frequents open country, clearings in heavy forest and semi-cultivated fields. Its colour, appearance and habits are very similar to the preceding race.

THE TREE PIPIT

The Tree Pipit (*Anthus trivialis trivialis*) is a winter visitor to India, occurring as far south as Travancore. The whole of the upper plumage is sandy brown, and each feather is streaked with broad, black central streaks except on the rump and upper tail coverts. It arrives in India early in September and leaves again by March or April. It is usually found in open country, especially near swamps and marshy meadows and wherever there are trees. When disturbed while feeding on the ground, it always flies and settles on a neighbouring tree or bush.

THE NILGIRI PIPIT

The Nilgiri Pipit (*Anthus nilghiriensis*) is a resident species found in the Nilgiris and Palni Hills in South India, breeding in the higher altitudes of the hills, above 4,000 feet. It is usually found away from the vicinity of towns and villages, keeping mostly to the grassy hill sides. In its habits, food, etc., it resembles very much the other species of Pipits.

Family ALAUDIDAE

Skylarks, Bushlarks, etc.

Larks constitute a distinct family of small, terrestrial birds generally of dull colouration. The hinder aspect of

the legs are covered with a series of horny, overlapping scales on each side. The hind claw is usually very long, but only very slightly curved. They feed on insects as well as on seeds and spend most of their time on the ground. Many species are gregarious, while others live in pairs. Some species of Larks, especially the Skylarks, are remarkable for their melodious song.

THE SMALL INDIAN SKYLARK OR THE EASTERN SKYLARK

The Small Indian Skylark or the Eastern Skylark (*Alauda gulgula gulgula*) is a small, streaked, brown bird, very similar to the Pipits, but distinguished from them by the slightly stouter build, short crest and crouching gait. It is essentially a bird of grassy meadows and open cultivated fields, especially moist grassland in the vicinity of streams and tanks. It feeds on the ground, both on insects and seeds, and has a peculiar, fluttering flight. This bird is a well known songster. It soars very high vertically up in the air until it appears almost as a small speck in the sky and hovering steadily at such heights, it utters its melodious, warbling song and then descends to the ground. When approached on the ground, instead of running, it prefers to squat.

THE MADRAS BUSH LARK

The Madras Bush Lark (*Mirafra assamica affinis*) is the southern race of the typical Bengal Bush Lark (*Mirafra assamica assamica*), and is confined to Southern India and Ceylon. It is a bird of the plains, found in open spaces, especially in stretches of dry grass, pasture or cultivated fields. It frequently likes to perch on bushes or dead branches of trees. It has a sweet, low-pitched melodious song, but not so well sustained as that of the Skylark. It breeds in Southern India from March to May.

THE MALABAR CRESTED LARK

The Malabar Crested Lark (*Galerida malabarica*) occurs all over Western India from Gujerat to Travancore and is fairly common over the greater part of the Deccan

Plateau. It frequents open, sandy wasteland and grassy slopes of hills and cultivated fields around villages. It sings, both when soaring and when perched on the ground or on bushes. It breeds from July to October, generally soon after the first showers of the monsoon. In the Nilgiris it is said to breed twice, first during February to April, and again from August to October. The specimens —a male and a female from Wynaad are exhibited.

SYKE'S CRESTED LARK

Syke's Crested Lark (*Galerida deva*) is a closely allied species found in open, sandy regions with very little vegetation as well as better cultivated land covered with crops. It breeds principally after the rains in June up to the middle of October. It has a sweet song and is a favourite cage bird. Only an egg of this species is exhibited.

THE INDIAN RUFOUS-TAILED FINCH-LARK

The Indian Rufous-tailed Finch-lark (*Ammomanes phoenicurus phoenicurus*) is a rather stoutly built, dark rufous brown Lark with a stout bill and a black-tipped bright rufous brown tail. It frequents dry, open, scrubland, ploughed fields and harvested fields with stubble. It runs rapidly on the ground in a zig-zag fashion, feeding on grass seeds, grains and insects. It utters its pleasant song chiefly when indulging in its aerial displays.

THE ASHY-CROWNED FINCH-LARK OR THE BLACK-BILLED FINCH-LARK

The Ashy-crowned Finch-lark or the Black-billed Finch-lark (*Eremopteryx grisea*) is another species of small, somewhat stoutly built, thick-billed Lark found all over India from the foot of the Himalayas to Cape Comorin. The male is sandy brown, with an ash-coloured crown and white cheeks and black underparts. It is essentially a bird of the plains, found in flocks, inhabiting open, cultivated country and semi-desert waste land. Its sandy brown colour harmonizes very well with the sandy soil as it squats close to the ground and shuffles its way along the ground in search of insects. The male often indulges in a

very spectacular aerial display. Two specimens from Madras are exhibited.

Family ZOSTEROPIDAE

The White-eyes

The White-eyes constitute a large family of very small perching birds, mostly yellowish green, bright yellow and white or greyish and distinguished by the presence of a ring of tiny white feathers around the eyes which gives them a characteristic bespectacled appearance. The beak is small, tapering, gently curved and sharp. The tongue is rather long and extensile and adapted for sucking nectar from flowers. They are largely arboreal and their food consists mostly of nectar from flowers, but they also eat berries and small insects.

Only one species, the Indian White-eye (*Zosterops palpebrosa palpebrosa*) occurs commonly all over India and this is represented in this Gallery by specimens from the Nilgiris and Shevroys.

THE INDIAN WHITE-EYE

The Indian White-eye (*Zosterops palpebrosa palpebrosa*) is a tiny greenish yellow bird with a prominent white ring round the eye and a slender, slightly curved, pointed bill. It is arboreal and is found practively throughout India, in small flocks searching actively for insects among the leaves in trees and bushes. It also feeds on fruits, berries and the nectar of flowers. It is quite common in the smaller sholas of the Nilgiri Hills in South India. The male has a pleasant song during the breeding season. They are active little sociable birds, mostly resident or migrating locally, and several geographical races varying in colour are distinguished.

Family NECTARINIIDAE

The Sunbirds and Spider-hunters

This is a large tropical family of very small, attractive birds, somewhat resembling the well known Humming Birds of America in appearance and habits. In the Sunbirds the

males generally possess bright plumage of brilliant metallic colours, while the females are usually much duller in colouration. The bill is long, slender, curved and sharply pointed and the tongue is very long, tubular and extensile; the bill and tongue are thus well adapted for extracting the nectar out of flowers. Besides nectar, they also feed on small insects and spiders. Most Sunbirds build bag-like nests suspended from branches of trees. They are strictly arboreal in habits and seldom descend to the ground.

Two species of Sunbirds, the Purple-rumped Sunbird and Loten's Sunbird, and one species of Spider-hunter are exhibited in this Gallery.

THE PURPLE-RUMPED SUNBIRD

The Purple-rumped Sunbird (*Nectarinia zeylonica sola*) is a beautiful little bird with the upper plumage and breast of a striking, glossy, metallic crimson, green and purple. It is a common and familar species frequenting gardens and groves, and the vicinity of villages and human habitations in the plains. It is an active bird ,found singly or in pairs, incessantly flitting about and hopping from flower to flower and tree to tree in search of nectar and insects. They visit a large number of flowers in their quest for nectar and thus aid in cross pollination. Pairs are invariably present on the white blossoms of the drum-stick. The nest is an oblong pouch of soft grass mixed with cobwebs, etc., with a side entrance. They breed practically throughout the year.

LOTEN'S SUNBIRD

Loten's Sunbird (*Nectarinia lotenia hindustanica*) is another closely allied common species of Sunbird found throughout the plains and lower elevations of the hills up to 5,000 feet in Southern India and Ceylon. It frequents forested regions, cultivated country and gardens and is specially attracted to flowers of *Hibiscus*. It feeds on nectar as well as on small insects. The nest is a pendant, pear-shaped structure made of grass, leaves, etc., often matted with cobwebs.

THE LITTLE SPIDER-HUNTER

The Little Spider-hunter (*Arachnothera longirostris longirostris*) is a little olive green bird, closely allied to the Sunbirds, with the chin and throat greyish white, turning to bright yellow on the lower breast and abdomen. The beak is long and powerful, and unlike the Sunbirds, the plumage is devoid of metallic gloss. It is a widely distributed species, and in South India it breeds mostly in March and April. It occurs on the plains and lower elevations of the hills up to an elevation of 2,000 feet and usually keeps to dense evergreen forests. It feeds on small insects and spiders. A single male specimen from South Coorg is exhibited.

Family DICAEIDAE

The Flower peckers

This is a family of very small birds closely related to the Sunbirds, but unlike the Sunbirds, the beak is short. They are strictly arboreal, never descending to the ground and feed mainly on fruits, berries and nectar, and also on insects and spiders. They are active birds, usually inhabiting forests or well wooded country and, as a rule, found singly or in pairs.

Two of the common South Indian species of Flower peckers, namely, the Thick-billed Flower pecker and the Nilgiri Flower pecker, are exhibited.

THE THICK-BILLED FLOWER PECKER

The Thick-billed Flower pecker (*Dicaeum agile agile*) is a resident bird found all over the plains practically throughout India and in the hills up to an altitude of about 6,000 feet. It inhabits open country, cultivated fields, gardens, orchards and the edges of forests. It is an active little bird, noted for its habit of jerking its tail from side to side while feeding or hopping about, and is purely arboreal, feeding on juicy fruits, berries, seeds, the nectar of flowers and small insects and spiders. The nest and eggs of this species are exhibited. The nest is a little felted bag, composed of plant down matted with cobwebs and suspended from a leafy twig.

THE NILGIRI FLOWER PECKER OR THE PLAIN-COLOURED FLOWER-PECKER

The Nilgiri Flower pecker or the Plain-coloured Flower-pecker (*Dicaeum concolor concolor*) is a South Indian species occurring on the West Coast of India from Travancore to the Nilgiris and Palani Hills and northwards to North Kanara. It is essentially a bird of the hills, breeding from the foothills up to the highest elevations in the hills of the Nilgiris and Palnis. It is especially common in the foothills where the ground is rough and broken and sufficiently wooded. The nest is an oval, bag-like structure composed of fibre and down. A single female specimen from South Coorg is exhibited.

Family PITTIDAE

The Pittas

The Pittas are gaudily coloured birds, somewhat resembling a Thrush in form and size, but with a very short and square tail. The legs are comparatively long. They are mostly terrestrial in habit and progress on the ground mainly by a series of vigorous hops. They are essentially forest birds, frequenting well wooded country and feeding on insects among fallen dead leaves, etc. They are usually found single and are rather pugnacious in disposition.

This family is represented in India only by a single species, the Indian Pitta (*Pitta brachyura*), specimens of which are exhibited in this Gallery.

THE INDIAN PITTA

The Indian Pitta (*Pittc brachyura brachyura*) is found practically throughout India in well wooded regions. It usually occurs singly and is mainly terrestrial, being often found on the ground among the dense undergrowth in scrub jungle. Its habits are more or less like those of the Thrushes. It hops on the ground like a Thrush turning over fallen dead leaves on the ground in search of insects and grubs on which it feeds. Besides, it also feeds on snails and other small animals. Its plumage is beautiful, with bright blue, green, black and white upper parts, and with

the abdomen and the part under the tail crimson. Its tail is short and stumpy. It is a local migrant, visiting Ceylon in large numbers during September and October. Male and female specimens and an egg of this species are exhibited.

ORDER PICIFORMES

This Order includes the Woodpeckers and Barbets (which alone are represented in India) besides several other species such as Toucans, Honey Guides, etc., which are not found in India. The most characteristic feature of the group is the zygodactylic feet, i.e., the first and fourth toes are directed backwards. The bill is strong and chisel-shaped and is very effective in cutting away the bark of trees in search of insects and for making holes for the nests in tree trunks and branches. Woodpeckers mostly cling to trees in an upright position with the tail pressed as a support against the stem, and are insectivorous, while Barbets perch on branches and feed almosst entirely on fruit.

The Indian species of this family belong to two families, the Picidae (Woodpeckers) and the Capitonidae (Barbets).

Family PICIDAE

Woodpeckers, Piculets and Wrynecks

These birds are specially adapted for climbing tree trunks and feeding on the insects found in the crevices of the barks and rotten wood. The tail is rather stiff and used as a support while climbing trees. The beak is straight, hard and wedge-shaped, adapted for cutting into the bark and wood and the tongue is extremely long, hard, pointed and barbed at the tip. It is protrusible and highly adapted for extracting the insects and grubs from the holes in the wood. Woodpeckers are often brightly coloured and usually live in pairs. The eggs are white and are laid in holes excavated by the birds in dead tree trunks or branches.

Fig. 15. Pitta brachyura brachyura :

The Indian Pitta.

Fig. 16. Dinopium benghalensis benghalensis : The Golden-Backed Woodpecker.

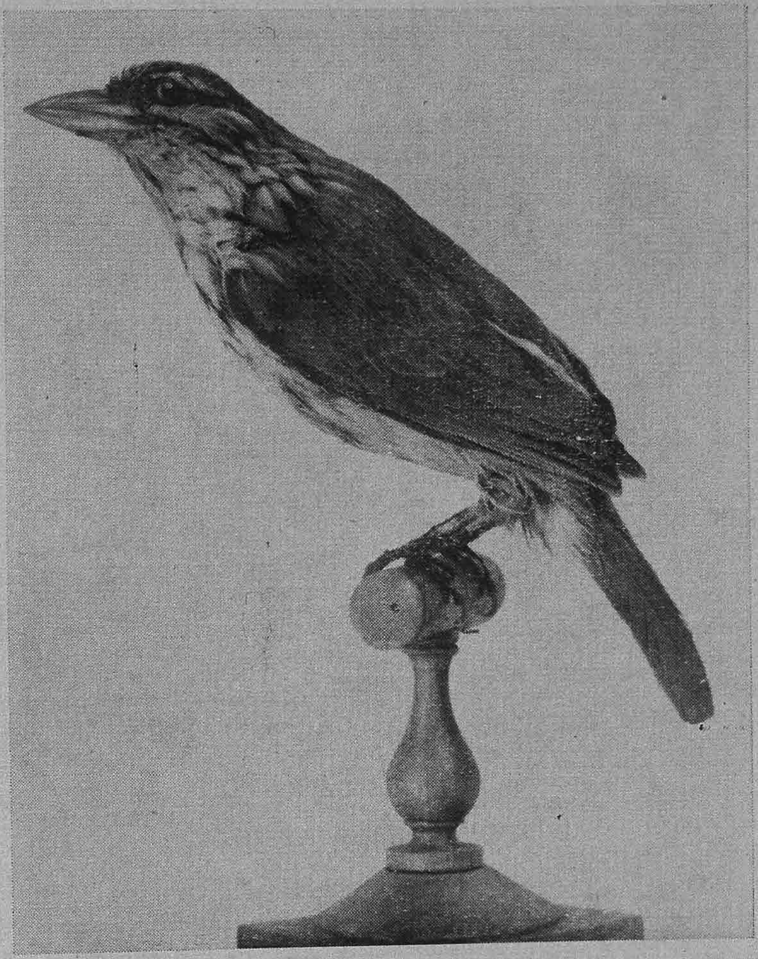


Fig. 17. Megalaima viridis :

The Small Green Barbet.

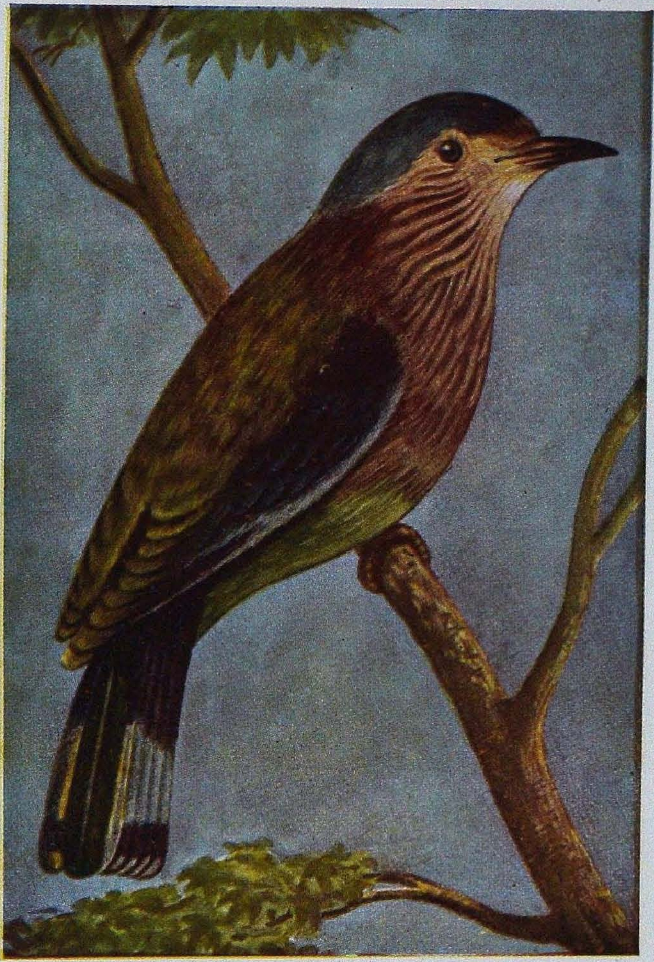


Fig. 18. Coracias benghalensis indica :
The Indian Roller or Blue Jay.

THE LITTLE SCALY-BELLIED GREEN WOODPECKER

The Little Scaly-bellied Green Woodpecker (*Picus xanthopygaeus*) is a resident bird found in sparsely wooded country, especially in the foothills and lower elevations up to an altitude of 5,000 feet. It is widely distributed, occurring in Ceylon, South India, Nepal, Assam and Eastern Himalayas. Its upper plumage is olive, tinged with green, while the rump and upper tail coverts are bright yellow. The crown and crest are crimson in the male, and black in the female. The under parts are greenish white, each feather with a dark, V-shaped band near the margin. It is generally solitary and feeds on insects, particularly ants, but unlike most Woodpeckers it climbs about fallen trees and huge rock boulders. Its cry is a sharp, single yelping call.

THE SOUTHERN INDIAN SMALL YELLOW-NAPED WOODPECKER

The Southern Indian Small Yellow-naped Woodpecker (*Picus chlorolophus chlorigaster*) is much darker green than the preceding species and the breast is spotted with white. It is found in forest and well wooded country, mostly in the foot-hills and higher up in the hills up to an altitude of 5,000 feet. It generally lives in pairs, but is often found in the company of other species and it descends to the ground more freely than other species of Woodpeckers. It feeds on insects, especially termites and ants and insect larvae, both on living and fallen trees. Its call is a loud, harsh, screaming cry, and it flies by a series of bounding undulations.

THE SOUTHERN YELLOW-FRONTED PIED WOODPECKER

The Southern Yellow-fronted Pied Woodpecker (*Dendrocopos mahrattensis mahrattensis*) is a small species of Woodpecker irregularly spotted black and white above, with the breast and flanks streaked with brown, and the abdomen and vent coloured scarlet-crimson. The crown

and crest are golden brown in the female, while in the male the crown is golden brown in front, shading into scarlet-crimson on the hinder crown and crest. It haunts low scrub jungle or thinly forested country and open, cultivated areas, and often enters gardens and orchards. It feeds on insects, particularly ants, which are taken low down on the bushes and trunks of trees. Its call is a weak, trill-like note.

THE SOUTHERN INDIAN PIGMY WOODPECKER

The Southern Indian Pigmy Woodpecker (*Dendrocopos nanus hardwickii*) is the smallest of our Woodpeckers, being scarcely larger than the House Sparrow. The Upper plumage is barred with dark brown and the crown is deep umber brown. It is a sociable bird, extremely active and quick in its movements. It haunts the higher branches of large trees and makes its nest hole in small dead branches. Its presence is often betrayed by its characteristic, long, shrill note. This race is the smallest of the species and is confined to Southern India, where it is common on the hills. Two specimens, a male and a female, from the Shevroy Hills, are exhibited.

THE RUFOUS WOODPECKER

The Rufous Woodpecker (*Micropternus brachyurus*) is a chestnut-coloured Woodpecker, about the size of a Mynah, with the plumage cross-barred with black on the wings and the tail. The male bears a crescent-shaped crimson patch of feathers under the eye. This is a fairly widely distributed species found practically throughout the Indian Union. It is a rather shy bird found usually living in pairs, in open forest often well away from human habitations but may also be seen in well wooded gardens in villages. It feeds largely on the tree ants and their larvae, obtained by digging with its bill into the large arboreal nests of the tree ants (*Crematogaster* sp.). It also feeds occasionally on nectar and wild figs. There are several races of this species, the specimen exhibited in this Gallery belonging to the South Indian race, *Micropternus brachyurus jerdonii*. These birds habitually utilize the nests of tree ants for laying their eggs. A single specimen from Shevroys is exhibited.

THE GOLDEN-BACKED WOODPECKER

The Golden-backed Woodpecker (*Dinopium benghalense benghalense*) is one of the best known of the Indian species of Woodpeckers and is perhaps the commonest of the Woodpeckers met with in South India. The upper plumage is bright golden yellow and black and the crown and crest are beautifully crimson. It is found throughout India in open scrubland, cultivated areas, groves, orchards, gardens and cocoanut plantations. It lives singly or in pairs and may often be seen climbing teers vertically, either in spirals or by a series of jerks, tapping the bark of trees and digging into the rotten wood for insects, especially black ants and beetles. Ripe fruit and nectar of flowers are also eaten. Its call is a loud, harsh, chattering note and its flight is heavy and undulating.

THE TICKELL'S GOLDEN-BACKED WOODPECKER

The Tickell's Golden-backed Woodpecker (*Chrysocolaptes lucidus guttacristatus*) is a much rarer species, but very similar to the preceding in colour. The crown and crest are crimson in the male, but in the female, they are black, spotted with white. This is a Northern Indian species found in Bengal, Bihar and Assam, and it is not clear how the single specimen exhibited in this Gallery could have been from Palni Hills in South India. Probably it was a stray straggler. This species is found in pairs, both in the plains and in the hills up to an altitude of about 5,000 feet. It inhabits well wooded country, feeding on insects almost always on the trunks and branches of trees. It also feeds on termites or ants on the ground. Its call is a harsh, prolonged note uttered while in flight.

THE MALABAR HEART-SPOTTED WOODPECKER

The Malabar Heart-spotted Woodpecker (*Hemicircus canente canente*). This is a small-sized Woodpecker, occurring over the Coast of Malabar and Travancore and also in North Kanara. It is a race of the typical Heart-spotted Woodpecker found in Assam, Burma and Malay Peninsula. The inner wing coverts are buff-coloured, with broad, heart-shaped, black bands. The Malabar race is more exclusively

a forest bird and is found in the hills up to an altitude of about 4,000 feet. It haunts the higher branches of tall trees and usually utters a shrill, chattering cry as it flies from tree to tree. One specimen from Wynaad is exhibited.

THE NILGIRI SPECKLED PICULET

The Nilgiri Speckled Piculet (*Picumnus innominatus malayorum*) is a very small species of Woodpecker, with soft, short tail feathers, occurring in the Nilgiris, Wynaad and Travancore Hills. It is the Southern race of the Himalayan Speckled Piculet, and is essentially a forest bird, keeping more to the higher branches of tall trees. Its flight is less dipping than in most other species of Woodpeckers.

THE EUROPEAN WRYNECK

The European Wryneck (*Jynx torquilla torquilla*) is a migratory bird, breeding in summer in Spain, Northern Europe and Western Siberia and visiting India during the winter. They are mostly found in Western and Southern India in winter. The tail feathers are soft and flexible. It hunts for insects on trees in well wooded, open country. Unlike Woodpeckers, it can run backwards and downwards with ease on the trunks and branches of trees. Its flight is slow and markedly dipping. Its food consists largely of ants which are often taken on the ground.

Family CAPITONIDAE

The Barbets

Barbets are small to medium-sized birds of rather stout and compact build, with a showy, brightly coloured plumage in which the green colour predominates. As in the Woodpeckers, the feet are zygodactylic, with the first and fourth toes directed backwards. Barbets have thick, heavy bills and feed mostly on fruit. They are strictly arboreal and are able to cut neat cavities in soft, dead branches of wood for their nests.

THE INDIAN CRIMSON-BREASTED BARBET OR COPPERSMITH

The Indian Crimson-breasted Barbet or Coppersmith (*Megalaima haemacephala indica*) is one of the most familiar of Indian birds and is easily recognized by its heavy bill and gaudy plumage of grass-green colour with a crimson breast and forehead, yellow throat and yellowish under parts streaked with green. It is arboreal and is found singly or in small parties, usually in large fruiting trees. It feeds mostly on fruits and berries, usually wild figs of various species; it also eats ripe guavas and soft grubs of insects. Its call is a loud, familiar, monotonous, metallic note resembling the syllables "*tonk, tonk, tonk*", repeated persistently throughout the day, recalling the hammering noise made by the coppersmith: hence the popular name "Coppersmith" for this bird. Its nest is a hollow excavated in soft, dead branches of trees, the entrance to which is a neat hole cut by the bird.

THE CRIMSON-THROATED BARBET

The Crimson-throated Barbet (*Megalaima rubricapilla malabarica*) is a closely allied species inhabiting the humid, forested tracts of South India, ranging from South Travancore, Mysore, Wynaad and Palni Hills. The chin, throat and front part of the neck are crimson. Its habits are very similar to those of the Coppersmith, and it has more or less the same monotonous call.

Two more species of Barbets belonging to the genus *Thereiceryx* are also exhibited.

THE COMMON INDIAN GREEN BARBET

The Common Indian Green Barbet (*Megalaima zeylanica zeylanica*) sometimes also known as the Ceylon Green Barbet, occurs in Ceylon, South Travancore, Shevroys and other hills of South India. The feathers of the head, neck and breast are characteristically streaked. It is common in village gardens and thinly forested areas, especially near cultivation. It is found from the plains up to about 3,000 or 4,000 feet in the hills, and feeds largely

on various species of wild figs, but it also eats insect larvae. A specimen from Udayagiri, Nellore District, and an egg of this species are exhibited.

THE SMALL GREEN BARBET

The Small Green Barbet (*Megalaima viridis*) occurs mostly in the hill ranges of South India and inhabits well wooded country. The upper plumage is beautifully grass green. It is common in gardens and cultivated tracts, and may be seen clambering about the trunks and branches of tall trees. It excavates a neat hole in soft, dead branches for its nest. Two specimens from the Shevroys and an egg of this species are exhibited.

ORDER CORACIIFORMES

Rollers, Bee eaters, Kingfishers, Hornbills and Hoopoes

The Coraciiformes constitute a varied assemblage of species grouped into different suborders, with diverse appearance and structure, but yet they are all related and have certain common anatomical and osteological features. The most important externally distinguishable character is the structure of the foot, which has the forwardly directed toes (numbers 2, 3 and 4) united at the base to a greater or less extent (syndactylic). The tarsi are very short. All the species lay white eggs in hollows excavated in trees or sand banks, etc. The young ones are hatched blind and helpless, without feathers. Nearly all species are carnivorous. This Order includes a number of families comprising the Rollers, Bee eaters, Kingfishers, Hornbills and Hoopoes.

Family CORACIIDAE

The Rollers

These are brilliantly coloured birds of medium size and stout build, with rather big heads and strong beaks. They are mainly insectivorous and are noted for their harsh, loud, screaming calls. They are known as "Rollers" on account of their curious habit of "tumbling" or "rolling"

in the air during the breeding season. They lay white, round eggs in cavities in trunks of trees or banks, and the young are born blind and naked.

The Indian Roller or Blue Jay is the commonest Indian species of this family. Specimens of this and the much rarer Broad-billed Roller are exhibited.

THE INDIAN ROLLER OR BLUE JAY

The Indian Roller or Blue Jay (*Coracias benghalensis indica*) is a strikingly coloured bird with a somewhat large head and a stout, black bill. The wings and tail are bright blue, the upper plumage and breast rufous brown and the abdomen and under tail pale blue. It is found practically throughout India in open, cultivated country and thin deciduous forest. It is one of the most familar birds of the Indian landscape and may be frequently seen perched on telegraph wires or bare stumps of trees, cocoanut and palmyrah trees, etc. From such vantage points it often flies down to capture its prey which consists of grasshoppers, beetles, small lizards or frogs on the ground. It returns to its perch or flies to another nearby where the prey is battered to death and swallowed. During the breeding season it often indulges in strange acrobatic stunts, rolling and tumbling in the air, uttering its harsh cries. It has a variety of loud, screaming calls. It is highly beneficial to agriculture. The specimens exhibited belong to the South Indian race.

THE BROAD-BILLED ROLLER

The Broad-billed Roller (*Eurystomus orientalis laetior*) is distinguished by its dull, dark greenish brown upper plumage, (turning brighter and more greenish on the lower back and upper tail coverts), and by the short, heavy, broad bill. It is essentially a forest bird, inhabiting the dense forest tracts, especially in the hilly areas, and habitually haunts the top-most branches of tall trees. It frequently sits motionless on such high branches and leafless stumps at the tops of the trees and from such vantage points it flies out now and then after flying beetles and other insects. It is as a rule a much quieter bird than the Indian Roller and appears to be silent, except for an

occasional harsh croaking cry. Its food mainly consits of wood-boring beetles and grasshoppers. A single male specimen from South Coorg is exhibited.

Family MEROPIDAE

Bee Eaters

Bee eaters are distinguished by their rather long, slender, gently curved beaks, with evenly tapering tips. Their legs are very short and their feet are small, feeble and syndactyle. They are richly coloured birds, the green colour predominating in most species. The wings are long and pointed and their flight is fairly strong and swift. They feed mainly on insects, which they usually capture on the wing. Bee eaters lay round, white eggs usually on the bare ground in a hollow at the end of a long tunnel excavated by the birds themselves in a bank or mound of earth. The young are hatched blind and naked.

THE COMMON INDIAN BEE EATER OR GREEN BEE EATER

The Common Indian Bee eater or Green Bee eater (*Merops orientalis orientalis*) is a beautiful, grass-green bird, tinged with reddish brown on the head and neck and with a conspicuous black band across the under side of the neck. The bill is long, slender and slightly curved. This is the commonest Indian species of Bee eater and occurs throughout India in open country, especially in the neighbourhood of cultivation and in gardens, meadows and forest clearings. It is often found in pairs or in small parties perched on telegraph wires, and flying up to catch bees and other insects on the wing. Its food consists almost entirely of insects, especially Diptera, bees and other Hymenopterous insects. Its call is a long, pleasant, jingling trill, constantly uttered both in flight and while at rest.

THE BLUE-TAILED BEE-EATER

The Blue-tailed Bee-eater (*Merops philippinus philippinus*) is distinguished from the preceding species by the tail being blue, with a wash of green, and by the green upper plumage being tinged with rufescent bronze colour.

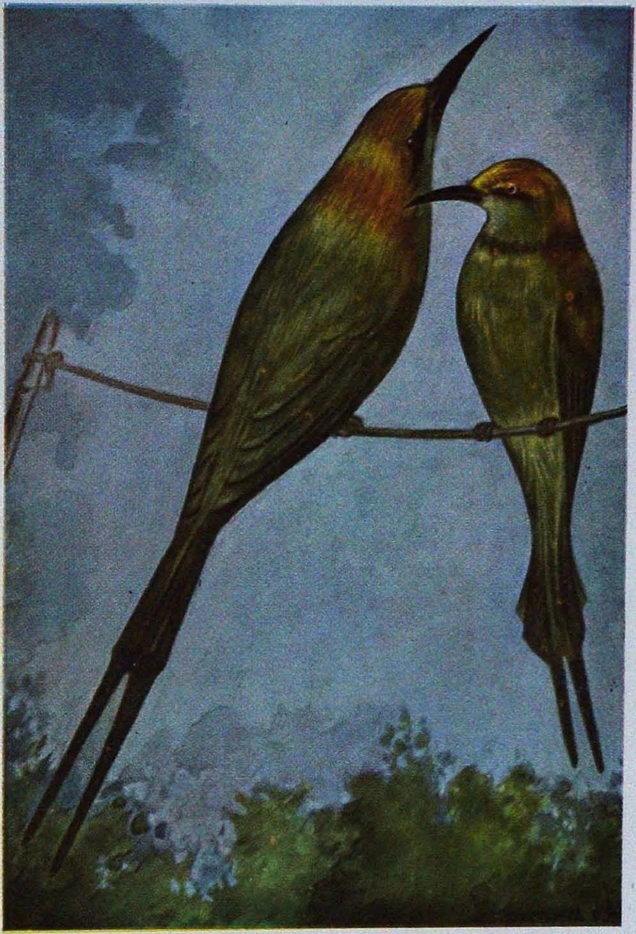


Fig. 19. Merops orientalis orientalis : The Common Indian Bee Eater or Green Bee Eater.

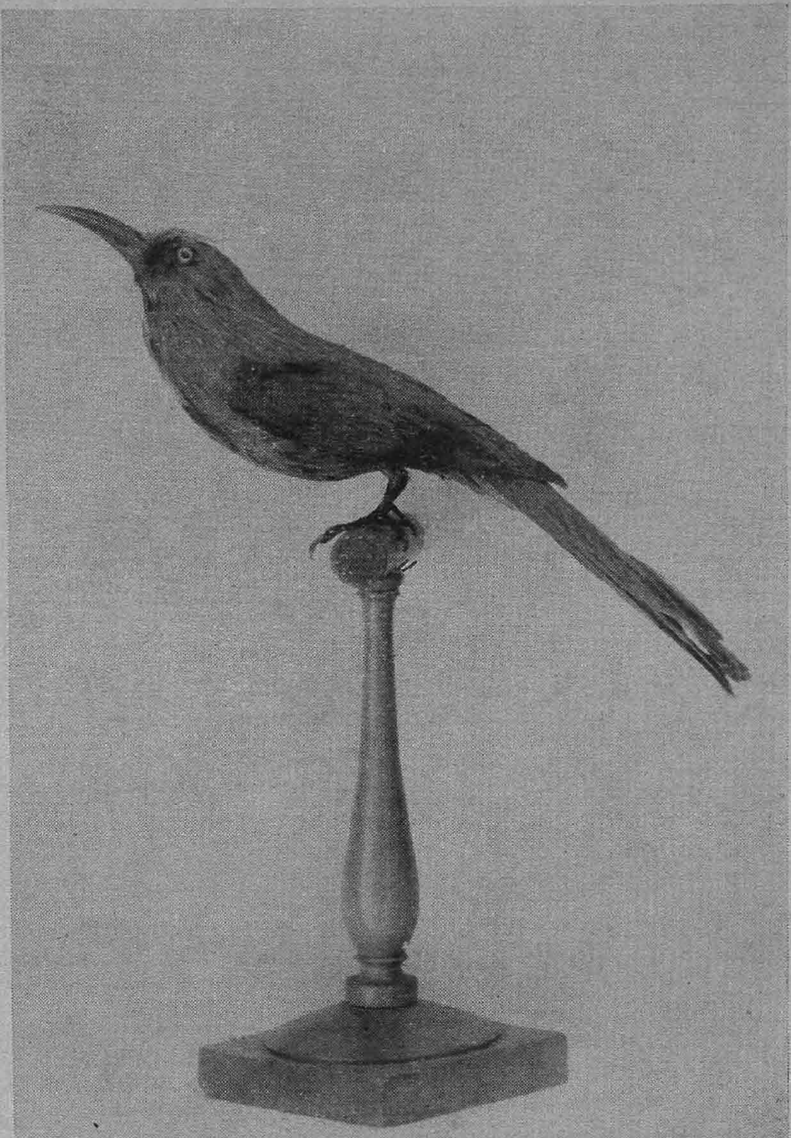


Fig. 20. Nyctyornis athertoni athertoni :

The Blue-bearded Bee-Eater.

It occurs practically throughout India, and is common in well cultivated and open country, especially in the wetter regions. It prefers the vicinity of water and may be often found on the banks of rivers and around tanks, perched on bare stumps of trees standing in the water or on telegraph wires, now and then darting into the air to snatch a passing insect and returning to its perch. Its food consists entirely of insects, mainly dragonflies and bees. Its call is a low, mellow chirping whistle. Only an egg of this species is exhibited.

THE CHESTNUT-HEADED BEE EATER

The Chestnut-headed Bee eater (*Merops leschenaulti leschenaulti*) is distinguished from the two preceding species by the head and upper part of the back being bright chestnut and the chin and throat yellow. It occurs in Ceylon, South West India and the Himalayan foothills up to an altitude of about 4,000 feet. It is found in small, scattered parties of four to twelve birds in fairly well wooded country, feeding on any kind of insects which are captured entirely on the wing. They roost in large colonies at nights in trees with dense foliage. In their general habits and food, they closely resemble the other species of Bee eaters. A single specimen from the Shevroys is exhibited.

THE BLUE-BEARDED BEE EATER

The Blue-bearded Bee eater (*Nyctyornis athertoni athertoni*) is a beautiful bird with a verditer blue forehead and forecrown, a bright, grass green upper plumage and wings and pale, buff-coloured under parts, and a stronger and deeper bill than in the preceding species. It is exclusively a forest bird, found from the foot of the hills to about 5,000 feet and may be seen perched either singly or in pairs on the tops of tall trees. It searches for insects among the leaves and flowers. Cotten trees in blossom are favourite haunts of these birds on account of the large quantities of insects that are available on these cotton flowers. Its call is a harsh note and its flight powerful, though less graceful than in most bee eaters.

Family ALCEDINIDAE

The Kingfishers

The Kingfishers are distinguished by their large heads, very thick, long, straight, powerful beaks, very short legs and comparatively small and feebly developed feet. Most species have a brilliantly coloured plumage in which blue tends to predominate. They are frequently found in the vicinity of water, and most species feed on fish, while others eat insects or other small animals. Their eggs are spherical, glossy and white and are laid in burrows which they dig into sand banks of rivers or tanks. The young are hatched blind and naked.

Several species of Kingfishers common in South India are exhibited in this Gallery.

THE INDIAN PIED KINGFISHER

The Indian Pied Kingfisher (*Ceryle rudis leucomelanura*) is easily recognized by its characteristic speckled black and white plumage and stout, sharp, dagger-shaped beak. It may be seen singly or in pairs in the plains in open country near rivers, backwaters and tidal streams, perched on some rock or tree stump near water. Its food consists mainly of small fish, but aquatic insects, tadpoles and prawns are also eaten. It has the habit of hovering in mid-air with its wings rapidly vibrating and then suddenly plunging headlong into the water to capture the fish it may have caught sight of. It emerges from the water with the fish and flies off to its favourite perch where the prey is battered to death and eaten at leisure. Two male specimens are exhibited.

THE COMMON INDIAN KINGFISHER

The Common Indian Kingfisher (*Alcedo atthis bengalensis*) is a little bright blue and green bird with deep rusty brown under parts, a long, pointed bill and short, stumpy tail. It is commonly found singly near streams, tanks, pools and puddles, often perched on a branch overhanging water. It feeds mainly on fish and aquatic insects. Its flight is very swift and straight, and its call loud and sharp Occasionally it has the habit of hovering in mid-air like the preceding species. A specimen from Thengapatnam, Nagercoil, and an egg of this species are exhibited.

THE BROWN-HEADED STORK-BILLED KINGFISHER

The Brown-headed Stork-billed Kingfisher (*Pelargopsis capensis capensis*) is readily recognized by its large size and enormously large, stout and compressed, blood-red bill. It occurs in Ceylon and practically throughout India, its distribution extending as far as Assam in the north. It inhabits well watered and well wooded country, keeping mainly to shady streams, pools and tidal creeks, fringed with mangrove swamps. It feeds mainly on fish, but its diet is very varied, including frogs, lizards, crabs, prawns and grasshoppers Its flight is very powerful and rapid, and its call is a hoarse, chattering cry. Two specimens of this large Kingfisher are exhibited.

THE INDIAN WHITE-BREASTED KINGFISHER

The Indian White-breasted Kingfisher (*Halcyon smyrnensis fusca*) is perhaps the commonest and most familiar of the species of Kingfishers occurring in South India, and is found practically throughout India and Ceylon in the plains and lower elevations of the hills. It is generally seen in the vicinity of flooded ponds, puddles and rice fields and the sea coast. But it may also be found well away from water, sometimes in the interior of thin forest. It often perches on telegraph wires, posts, bare tree stumps, etc., looking out for its prey. It feeds mostly on fish, tadpoles, insects, earthworms and lizards. It has a loud, screaming call. It builds its nest in a horizontal tunnel dug into a sand bank of a stream or tank. Besides individual specimens, a group showing its nest and eggs in a tunnel excavated in a sand bank is also exhibited.

THE BLACK-CAPPED KINGFISHER

The Black-capped Kingfisher (*Halcyon pileata*) is distinguished by the presence of a cap-like patch of black, velvety feathers on the head separated from the back by a prominent white collar on the hind part of the neck. The upper pulmage is purple or deep cobalt blue and the under parts reddish buff. It is found practically throughout the coastal areas of South India and is a rare winter visitor to

Ceylon. It inhabits mostly the sea coast and the vicinity of tidal rivers and mangrove swamps bordering tidal creeks, and shows a marked preference to the neighbourhood of salt water or brackish water. Its food consists mostly of fish and crabs. Its nest is in the hollow of a tunnel excavated in the sand-bank of a river or tidal creek. Two specimens, of which one is from Kistna District, are exhibited.

THE INDIAN RUDDY KINGFISHER

The Indian Ruddy Kingfisher (*Halcyon coromanda coromanda*) is a rare species and is distinguished from the other species of *Halcyon* by the beautiful, violet chestnut colouration of its upper plumage. The middle of the lower back and rump are white, tinged with blue. This species has been originally recorded as a Himalayan species, occurring only in the north, from Nepal to Eatern Assam, but the specimens from Guduvanchery, Chingleput District, exhibited in this Gallery indicate that the distribution of this species extends to South India also, although it appears to be very rare in the South. It breeds only in the interior of evergreen forest and in the Himalayas it is found up to an altitude of 5,000 or 6,000 feet. Its flight is extremely swift and its call is a shrill, high-pitched note. Its food consists of insects, land snails, tadpoles, etc. One of the two specimens exhibited is said to have been shot by Mr. Edgar. Thurston, former Superintendent of the Madras Museum at Guduvancheri, sixteen miles south of Madras.

Family BUCEROTIDAE

The Hornbills

This family comprises a group of rather large and heavily built birds with certain distinctive characters. They are easily recognized by their enormously large bill which in many species is surmounted by a huge protuberence, the "casque". The plumage is rather soft and sparsely developed and the under wing coverts do not cover fully the bases of the flight feathers. This accounts for the extraordinarily loud, droning noise made by the Hornbills while flying, produced by the wind rushing through

the bases of the quills in flight. The Indian species of this family are all arboreal. Hornbills are omnivorous, but feed mainly on fruit. They nest in holes in the trunks of big trees, and their nesting habits are interesting.

THE GREAT INDIAN HORNBILL OR THE GREAT PIED HORNBILL

The Great Indian Hornbill or the Great Pied Hornbill (*Buceros bicornis homrai*) is the largest of the Indian species of Hornbills and occurs along the West Coast of India in the Western Ghats from Travancore to Bombay and also in the tropical Eastern Himalayas from Kumaon to Eastern Assam, at elevations up to 3,000 feet from the plains. In winter, they are more or less gregarious, being found in flocks. When flying, their wings produce a loud droning sound which can be heard for a distance of many miles. They are omnivorous, but mainly feed on fruit. Reptiles, large insects, mice, rats, etc., are also eaten. They nest in hollows in the trunks of big trees. The entrance to the hole is walled up by the bird by means of a paste composed of its own droppings leaving only a narrow, vertical slit. Throughout the period of incubation, the female is imprisoned within this nest, while the male assiduously feeds her through the slit in the entrance wall. When the young are hatched, the female breaks the wall and releases herself and the entrance is walled up again and thenceforth, both parents feed the young through the slit until their feathers are fully grown, when they are released. The nesting habits of other species of Hornbills mentioned below are also almost the same. A single specimen from the Western Ghats is exhibited.

THE COMMON GREY HORNBILL

The Common Grey Hornbill (*Tockus birostris*) is a large, clumsy, brownish grey bird, about the size of a common Kite, with an enormous black and white curved bill surmounted by a protuberence—the "casque". It is arboreal and inhabits open country or thinly forested regions, but does not enter dense, evergreen forest. It is commonly seen in banyan and pipal trees full of ripe fruit

in villages, often feeding in company with other frugivorous bird. Its flight is laboured and noisy, and its call is a loud, cackling cry.

THE MALABAR GREY HORNBILL

The Malabar Grey Hornbill (*Tockus griseus griseus*) is confined to South West India, from South Travancore to Khandesh. It is distinguished by a slaty grey upper plumage with a tinge of brown, slightly glossed with greyish green and a horny yellow bill with a brownish red tinge. It is a bird of the open, deciduous forest and is said to be common on the Cardamom hills at elevations of 3,000 feet. It is also found in tea plantations and rice cultivations. Its flight is easy and rapid. It almost always occurs in small flocks and is said to be an extremely noisy bird. Two specimens—a male and a female, from Wynaad—are exhibited.

THE MALABAR PIED HORNBILL

The Malabar Pied Hornbill (*Anthracoceros coronatus coronatus*) is a moderately large, heavy-billed arboreal bird with black neck, upper parts and wings and white under parts. It is found in Ceylon and all over Southern and Central India, including Bihar and Orissa. The bill is very large, heavy, waxen yellow and black, surmounted by a casque. These are noisy birds, almost always found in small flocks and inhabit dry, well wooded, deciduous forests and are especially found in fruit-bearing trees. They feed mainly on fruit, and their flight, which is quite noisy, consists of alternate flappings and glidings as in most of the smaller Hornbills. Its call is a loud, cackling cry. A single male specimen from South Coorg is exhibited.

Family UPUPIDAE

The Hoopoes

These are attractive birds with a striking colour pattern, and a fine, erectile crest which forms a high, elegant crown when erect. The plumage is rufous, with a bold pattern of black and white bands. The beak is long,

slender and gradually curved and is adapted for probing in soft soil for insects and grubs. The legs are very short and the feet imperfectly syndactyle, the third and fourth digits being joined at the base. The wings are broad and rounded. Hoopes nest in hollows in trees trunks and buildings and lay white, rounded eggs.

Only a single species, the Indian Hoopoe, is common in India; three specimens of this species are exhibited.

THE INDIAN HOOPOE OR HUDHUD

The Indian Hoopoe or Hudhud (*Upupa epops ceylonensis*) is a beautiful, fawn-coloured bird with a bold pattern of alternating black and white bands on the back, wings and tail and a prominent fan-like crest on the crown. The Hoopoe as a rule avoids heavy forest and is most commonly found in open country, in lawns, gardens and groves, especially in the outskirts of villages and towns where it frequents old and ruined buildings and mud walls. It walks and runs on the ground with a peculiar tripping gait and feeds almost entirely on the ground, probing into the soil for insects and grubs. When digging, the crest is kept folded back, but it is frequently erected and opened fanwise. Its call consists of a soft, melodious, long drawn-out note repeated intremittently. Its nest is an untidy one, placed in a natural cavity in the wall or ceiling of a building. Its flight is normally rather slow and dipping, but it can fly fast when needed.

ORDER APODIFORMES

The Swifts, Tree Swifts and Humming Birds

Swifts and the Humming the Swifts and the Humming Birds. Of these, the Humming Birds are confined to North and South America and the neighbouring islands, and the Swifts alone are represented in the Oriental Region. Swifts resemble the Swallows superficially, but are unrelated to them. The feet of the Swifts are remarkable in that all the toes in them are turned forwards. Their wings are long and narrow and they are extremely swift in their flight. The Swifts belong to the family Apodidae.

Family APODIDAE

(= MICROPIDAE = MICROPODIDAE)

The Swifts

Swifts are highly specialized for an almost exclusively aerial life and show many superficial resemblances to the Swallows. The wings are very long and narrow, and the beak is very short, but with a wide gape, enabling these birds to capture small, flying insects, entirely on the wings. The legs are very short and all the four toes are directed forwards. The claws are strong and sharp and enable the birds to cling to vertical surfaces on which they roost. On account of the highly specialized structure of its legs and feet the Swift is quite unable to perch on a tree or to alight on the ground. Should it tumble accidentally to the ground, it is unable to take off and rise again. The nest of the Swifts is composed largely of the saliva of these birds with other nesting materials glued together.

THE ALPINE SWIFT

The Alpine Swift (*Apus melba melba*) is a very large-sized Swift with exceptionally long and narrow wings. It is widely distributed, occurring in the mountain ranges of Northern Africa and of Southern Europe as far north as the Alps and South West Asia, and is a migratory bird spreading practically throughout India and Ceylon in winter. It inhabits the mountains and foothills where it roosts in large flocks on the great rock cliffs. Its flight is the fastest of all true Swifts, but yet it is utterly incapable of movement on land. Its food consists entirely of insects, captured on the wing. Its call is a shrill twittering note. Towards dusk these Swifts congregate in large numbers in the cracks and crevices of rocky precipices and cliffs which are their favourite roosting places.

THE COMMON INDIAN HOUSE SWIFT

The Common Indian House Swift (*Apus affinis affinis*) is the Indian race of a widely distributed species occurring from North Western Africa to South East Asia, India, Ceylon, Burma and Malay Peninsula. The Indian

Fig. 21. Ceryle rudis leucomelanura :
The Indian Pied Kingfisher.

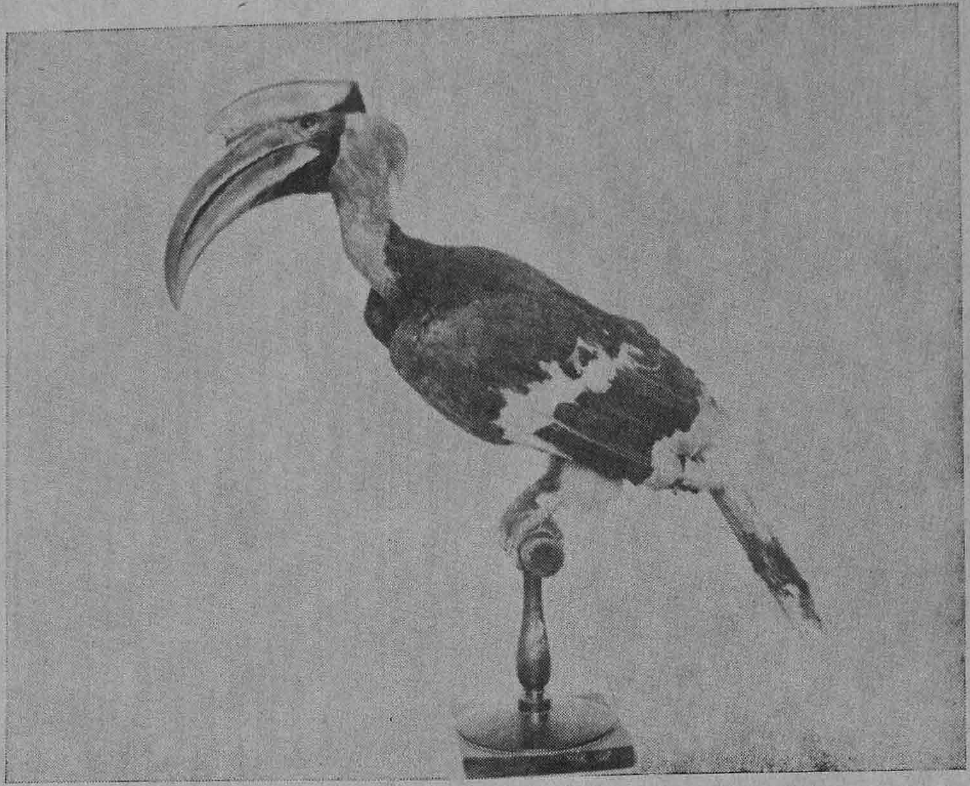


Fig. 22. Buceros bicornis homari:

The Great Indian Hornbill or The Great Pied Hornbill.

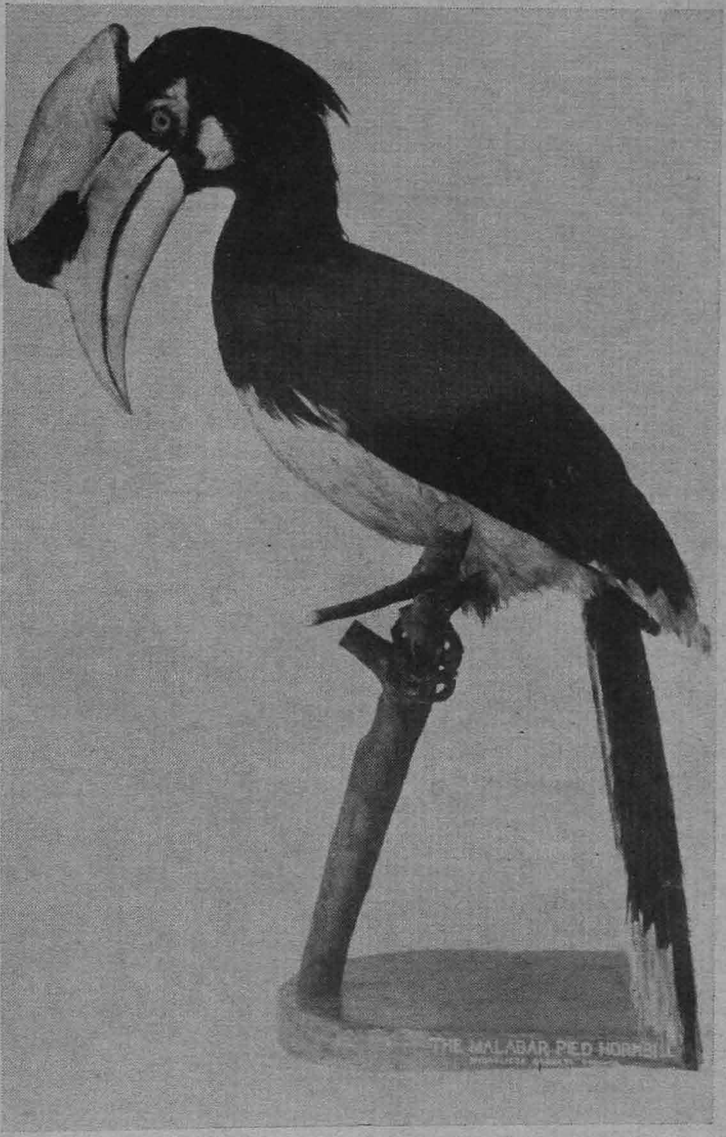


Fig. 23. Anthracoceros coronatus coronatus :

The Malabar Pied Hornbill.

Fig. 24. Nests (with eggs) of the Indian Edible nest Swiftlet: *Collocalia fusiphaga unicolor.*

race *affinis* is found practically throughout India. It is highly gregarious, being usually found in flocks of fifty or more individuals and breeds in colonies. It is commonly found in the neighbourhood of human habitations in the plains as well as on the hills. These Swifts may be seen flying in large flocks, spending most of the hours of daylight hawking for insects on the wing. Their long, narrow wings enable them to fly almost inceassantly. They nest in small colonies between February and September; these nesting colonies are usually found in and around buildings or under bridges and rocks on steep hill sides. Their nests are made mostly of feathers, grass, straw, etc., firmly cemented together with their saliva. Several specimens and two eggs (long and narrowly oval-shaped) of this species are exhibited. These birds are locally migratory to a certain extent.

THE BENGAL PALM SWIFT

The Bengal Palm Swift (*Cypsiurus parvus batasiensis*) is a small, slim, sooty-grey bird with a narrow, deeply forked tail, found in the open plains, almost invariably associated with palm trees. It is found gregariously only in places where the palm tree grows. These Swifts hawk for tiny winged insects in large flocks in the neighbourhood of palmyrah trees, constantly uttering their shrill, trill-like cry. Their nests, which consist of feathers and vegetable down cemented together by the birds' saliva are always found fastened to the under surface of a palm leaf, generally that of a toddy palm.

THE BROWN-THROATED SPINETAIL

The Brown-throated Spinetail (*Chaetura gigantea indica*) occurs in Assam, Manipur, Andamans and Southern India where it is common in Travancore and Kanara. It usually lives in large, scattered flocks, nesting in large trees growing in deciduous forest at low elevations on the hills. They travel long distances and are able to fly at great speed. They feed on insects, particularly bees, entirely on the wing. In Travancore, they have been found roosting in large flocks in big, hollow, forest trees. They deposit the eggs in the hollows of trees without making any nests.

They are hunted extensively by the hill tribes for their flesh. In the Spinetails (genus *Hirundapus, now known as Chaetura*) the tail feathers which are normally very stiff and unyielding, have rigid prolongations of the shafts, forming spines which project some distance beyond the webs.

THE INDIAN OR THE MALAYSIAN, EDIBLE NEST SWIFTLET

The Indian or the Malaysian, Edible Nest Swiftlet (*Collocalia fusiphaga unicolor*) is a resident bird found mostly on the hills from elevations of about 3,500 feet and upwards in Southern India and Ceylon and also in Simla Hills in the North. It is especially common in Malabar, Travancore, Nilgiris, Palnis, Anamalais and the hills of Mysore. It is always found in rocky hills where it nests in suitable caves, the nests being attached to the wall or roof of the rocky caves. These birds occur in flocks of varying sizes and nest in large colonies. The nests are small, saucer-shaped structures composed of a lichen cemented together by the saliva of these birds, in the hills, but along the sea coast, sea weeds seem to be used instead of the lichen in building the nests. These nests are said to be filthy, but are nevertheless gathered in large numbers every year for being used in making the well known "Bird's nest soup" which is considered a delicacy in Malaya and China. Several nests of this species (one of them with the eggs) are exhibited.

THE INDIAN CRESTED SWIFT OR TREE SWIFT

The Indian Crested Swift or Tree Swift (*Hemiprocne longipennis coronata*) is a beautiful, slenderly built Swift with a long, deeply forked tail, long, narrow, pointed wings and a prominent, erectile crest on the forehead. It is found practically all over India and Ceylon, and is essentially a bird of the forests and well wooded country, where it is found in pairs or small parties hawking for flies and other tiny insects in a circling flight. Sometimes it perches upright on the bare topmost branches of trees with the wings crossed, erecting its crest while doing so. It has a loud, screaming cry. It breeds during March, April

and early May, building a very thin, tiny, pocket-like nest fastened to some branch in a tree.

ORDER CAPRIMULGIFORMES

Nightjars and Frogmouths

This Order comprises the Nightjars (family Caprimulgidae) and the Frogmouths (family Podargidae) of which the Nightjars alone are represented in this Gallery. These birds are nocturnal and mostly related to the Owls in many respects. Their legs are very short and the feet are small and syndactylous.

Family CAPRIMULGIDAE

The Nightjars

Nightjars are nocturnal, insectivorous birds with a soft, mottled plumage and are related to the Owls which they resemble in several respects. They have long wings and tails, small and weak beak and very short and weak legs, but rather large owl-like head with large eyes. Although the beak is small,, the gape of the mouth is enormously wide, enabling the birds to capture all their insect prey on the wing with ease. The claw of the middle toe has a serrated, comb-like flange on the inner side. The short legs are heavily clothed with feathers. They usually roost on the ground, laying their mottled eggs on the bare ground, without making any nest. Three species of Nightjars commonly occurring in South India are exhibited.

JERDON'S LONG-TAILED NIGHTJAR

Jerdon's Long-tailed Nightjar (*Caprimulgus macrurus atripennis*) occurs in Ceylon, Travancore and the Malabar Coast and on the Wynaad, Nilgiris and Palni Hills and in the Godavary Valley. In Southern India it is found commonly on the Nilgiris where it frequents dense forested areas during the day, but comes out into the open for food towards sunset, perching on the ground or on bare stones or trees from where it pursues its insect prey, hawking for them and capturing them on the wing. When perched on the ground or on a tree it utters its peculiar call "*chock*

chock" from which it derives its popular name "Ice bird" A single male specimen from Kodaikanal is exhibited.

THE INDIAN JUNGLE NIGHTJAR

The Indian Jungle Nightjar (*Caprimulgus indicus indicus*) is a common resident bird found both on the plains and on the hills in the jungle as well as open country. On the Nilgiris and other Hills of Southern India it is found both in open country and in the forest-clad valleys. In Travancore it is said to be a winter visitor to the lower slopes of the hills, being found in the higher altitudes during summer months. Its call is said to be of two kinds: firstly, a sound resembling "*chuck-chuck-chuck*", repeated about half dozen times and a second call resembling the disyllables "*chucker-chucker-chucker*" repeated evenly like the first call. The eggs are laid on the bare ground. A male and female specimens from Wynaad are exhibited.

THE COMMON INDIAN NIGHTJAR

The Common Indian Nightjar (*Caprimulgus asiaticus asiaticus*) is the commonest species of Indian Nightjar and is found practically throughout the Indian Union and Ceylon. It is a common resident bird on the plains and does not ascend the hills. It frequents gardens, groves and scrub jungles but does not enter thick forest. It may be frequently heard uttering its familiar call "*tuk-tuk-tuk-tuk-r-r-r* . . . " in compounds, gardens and groves near cultivation and around towns and villages. It rests during the day time and is active only at dusk and during the night when it feeds mainly on beetles, moths and other insects captured on the wing, but sometimes it takes them also on the ground. No nest is made and the eggs, usually a pair, are laid on the bare ground. Male and female specimens and a pair of eggs of this species are exhibited.

ORDER TROGONIFORMES

The Trogons

This Order comprises a single, ditsinct family, the Trogonidae, which includes the Trogons. They are principally found in the forests of South and Central America,

but a few species occur in Africa, India, Ceylon and Indo-Malayan Regions. Trogons differ from all other birds in the structure of their feet. The first and second digits are turned backwards while the third and fourth are directed forwards.

Family TROGONIDAE

Apart from the peculiar structure of the foot (zygodactyle) referred to above, Trogons are characterized by soft, ample plumage and very thin, delicate skins. The wings are short, narrow and rounded and the tail long. The beak is rather short and the legs are also short and weak, and the feet small and adapted only for perching. They are arboreal birds inhabiting forest and feeding on insects, mostly captured on the wing.

A specimen of the single South Indian species of this family, the Malabar Trogon, is exhibited in this Gallery.

THE MALABAR TROGON

The Malabar Trogon (*Harpactes fasciatus malabaricus*) ranges in its distribution from the coasts of Travancore, Malabar and the south of Bombay State eastwards up to the hills of Mysore. It has also been recorded from Chota Nagpur and Midnapore in Western Bengal, extending even up to the mouths of the Godavary. It is essentially a forest bird and is shy and retiring in its disposition, keeping mostly to thick jungle. Its presence is very often known by its peculiar mewing call. It is generally found in hill forests from 1,000 feet upwards, but occasionally it descends to the forests of the plains. It feeds mainly on beetles, cicadas and other hard-bodied insects capturing them mostly on the wing. The eggs are laid in natural hollows in dead trees or stumps.

ORDER CUCULIFORMES

Cuckoos or Koels and their allies

This Order comprises the Cuckoos or Koels, Malkohas, Councils or Crow-pheasants and their allies (family Cuculidae) which are widely distributed throughout the tropical

and temperate regions of the world, and the Plantain eaters or Touracos (family Musophagidae) which are confined to Africa. The general characters of the Order are more or less the same as those mentioned for the family Cuculidae, below.

Family CUCULIDAE

The Cuckoos, Malkohas and Coucals

These constitute a rather diverse group of birds with zygodactylous feet and with rather soft and loose plumage. Many species are beautifully coloured. The true Cuckoos belong to the sub-family Cuculinae and are mostly migratory birds with long, pointed, but narrow wings and fairly long tail. They are parasitic in their breeding habits, laying their eggs in the nests of crows and other Passerine birds which incubate them and foster the young cuckoos. The Malkohas and the Coucals, on the other hand, are non-parasitic in their breeding habits.

Subfamily CUCULINAE

This Subfamily includes the Koels and the true Cuckoos. They have long, pointed, narrow wings, short, weak legs and long tail. The beak is rather small, tapering and gently curved. The legs are short and weak with the tarsus more or less feathered anteriorly, sometimes only at the base. The birds of this Subfamily are parasitic in their breeding habits, laying their eggs in the nests of other Passerine birds. Most species of Cuckoos included in this Subfamily are migratory.

THE ASIATIC CUCKOO

The Asiatic Cuckoo (*Cuculus canorus canorus*) is a migratory species, widely distributed all over Northern Asia from West Siberia to Central Asia, Himalayas, Tibet and Western China and arriving in the plains of India in winter. It resembles a small hawk, e.g., the Shikra, but is distinguished by its small, pointed beak, smaller head and graduated tail. Its flight is powerful and rapid, resembling that of a hawk. It feeds on insects; particularly on soft, hairy caterpillars. Its call is a musical double note,

It lays its eggs in the nests of other small birds such as Pipits, Bushchats, Wagtails and Ruby-throats.

THE INDIAN CUCKOO

The Indian Cuckoo (*Cuculus micropterus micropterus*) is found practically throughout India and Ceylon and more or less resembles a hawk in general appearance. It occurs in the more well wooded and better watered areas of the country, especially in the lower elevations of the hills. It keeps to the tops of tall trees in forests, especially on the hill slopes. Its call is a melodious double note of two syllables in each note. Its eggs are pale bluish and are laid in the nests of bushchats, stonechats, etc. Young birds are barred on the head and neck with white or rufous white.

THE COMMON HAWK CUCKOO OR BRAIN-FEVER BIRD

The Common Hawk Cuckoo or Brain-fever Bird (*Cuculus varius varius*) is a resident bird, ranging in its distribution over the whole of India and Ceylon, except Sind and the Punjab. It inhabits well wooded country such as scrub jungle and deciduous forest and is also frequently met with in gardens and groves in the neighbourhood of human habitations. It is almost entirely arboreal, and is silent during the winter months, but with the approach of summer, during the breeding season, its familiar, loud, irritatingly monotonous, screaming call, resembling the words "*brain fever*" uttered repeatedly, may be frequently heard; this call has accounted for its popular name "Brain fever bird". Its food consists mainly of hairy caterpillars and soft-bodied insects, but berries and wild figs are also eaten. It lays its deep blue eggs in the nests of various species of Babblers.

THE INDIAN PLAINTIVE CUCKOO

The Indian Plaintive Cuckoo (*Cacomantis merulinus passerinus*) is found practically throughout India in the more wooded and better watered areas on the plains and the hills. It is common in the Nilgiris where it ascends

up to an altitude of about 5,000 feet. It frequents gardens, groves and orchards and is motslly a resident bird, but is sometimes a local migrant. It is migratory in Ceylon where it arrives with the advent of the North-east monsoon and leaves again by about April. It feeds on insects, especially hairy caterpillars. In the breeding season, it has a monotonous, plaintive call resembling a whistle of two syllables, the last syllable being lengthened out. It is a restless bird, capable of flying quite rapidly. It lays its eggs in the nests of warblers.

THE INDIAN BAY-BANDED CUCKOO

The Indian Bay-banded Cuckoo (*Cacomantis sonneratii sonneratii*) is distinguished by its forehead, crown and upper plumage characteristically banded with brown and rufous. It is found throughout India and is extremely common on the hills of Southern India, including the Nilgiris, but is rather uncommon around Madras. Wherever it occurs, it is a familiar bird, frequenting gardens, groves and orchards and during the breeding season it is a very noisy bird, constantly uttering its loud, high-pitched metallic call. It is said to be a shy bird, keeping to the tops of trees. It lays its eggs in the nests of the Red Whiskered Bulbul, the Common Iora and other Passerine birds.

THE PIED CRESTED CUCKOO

The Pied Crested Cuckoo (*Clamator jacobinus jacobinus*) is easily recognized by its characteristic black and white plumage, crested crown and long, graduated tail. It is found practically throughout the Indian Union and up to about 8,000 feet in the Himalayas. It frequents open, well wooded country, especially damp and well watered areas. It is mostly arboreal, but frequently perches on low bushes near the ground. It is locally migratory to a great extent, its movements being largely influenced by the South West monsoon. It feeds mainly on caterpillars, but ants, spiders, bugs and land molluscs are also eaten. It is a noisy bird, with a variety of shrill, metallic calls. It is not shy or retiring, and may be frequently seen in small parties chasing each other over bush-covered areas. Its

Fig. 25. Clamator coromandus :
The Red-Winged Crested Cuckoo.

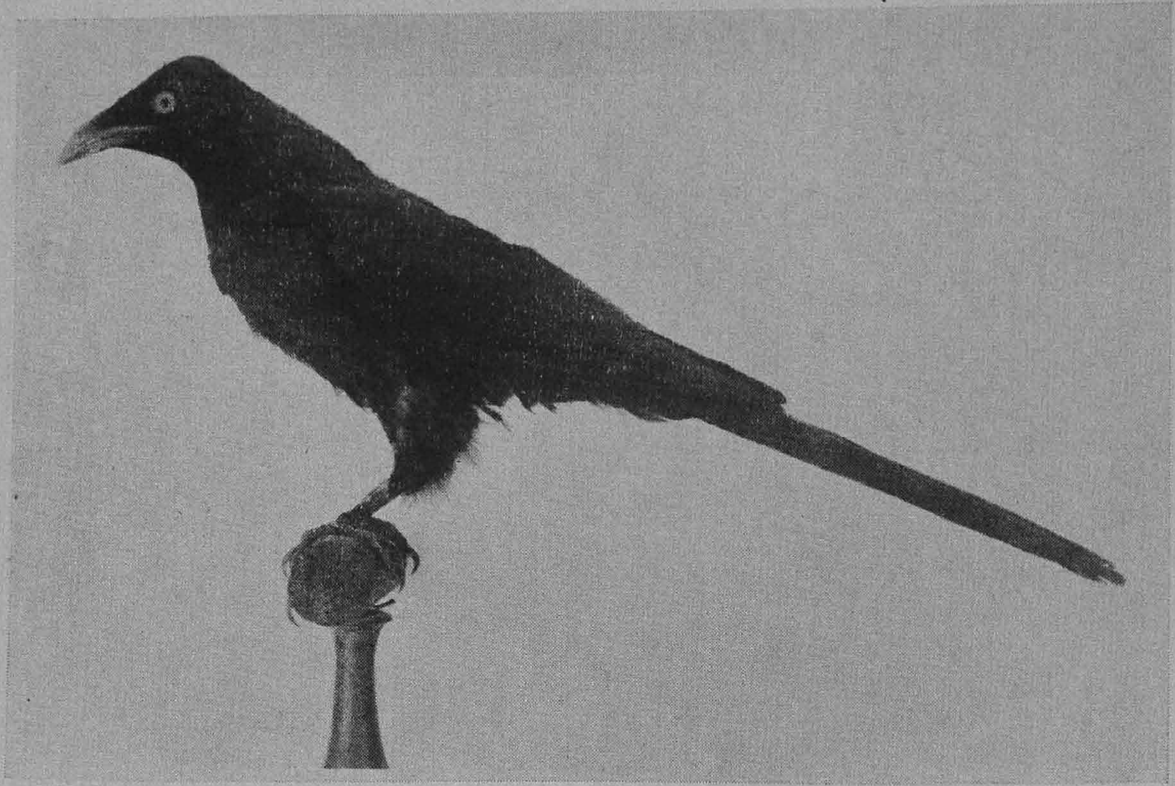


Fig. 26. *Eudynamis scolopacea scolopacea* : The Indian Koel (Male).

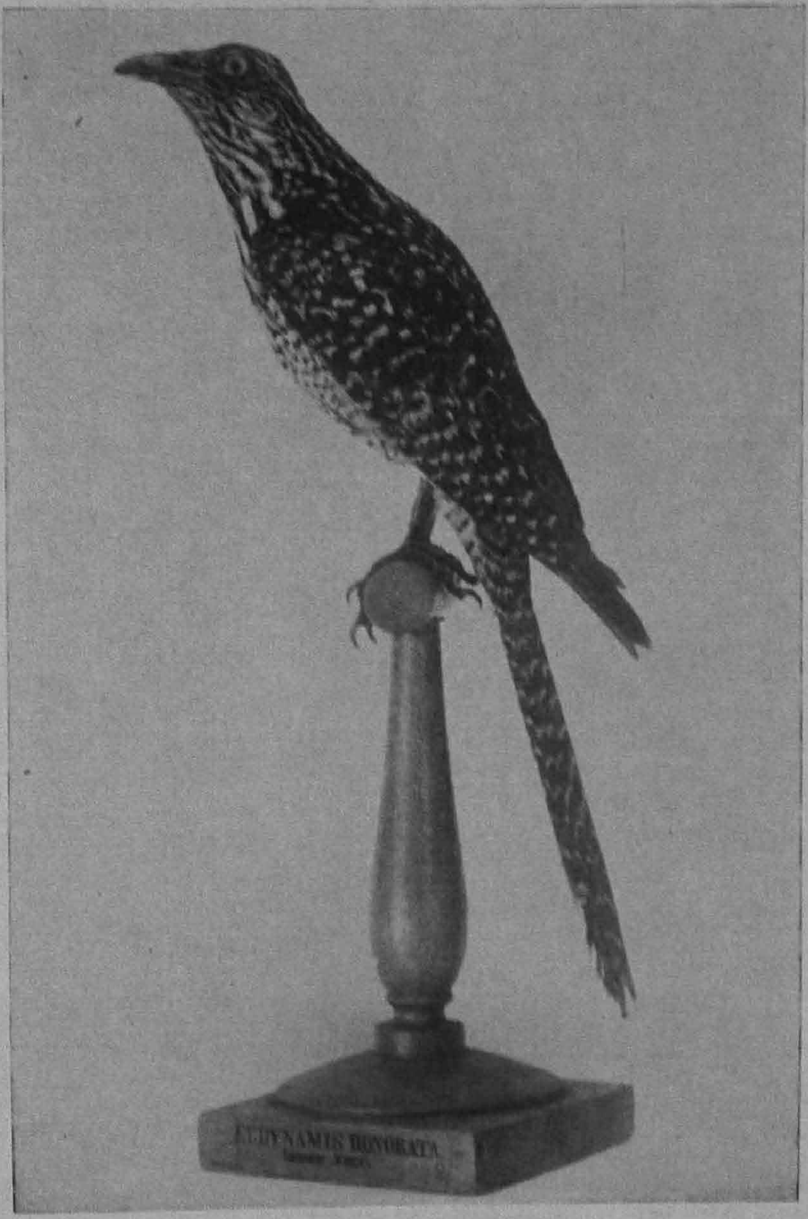


Fig. 27. Eudynamis scolopacea scolopacea :

The Indian Koel (Female).

Fig. 28. Rhopodytes viridirostris :
The Small, Green-Billed Malkoha.

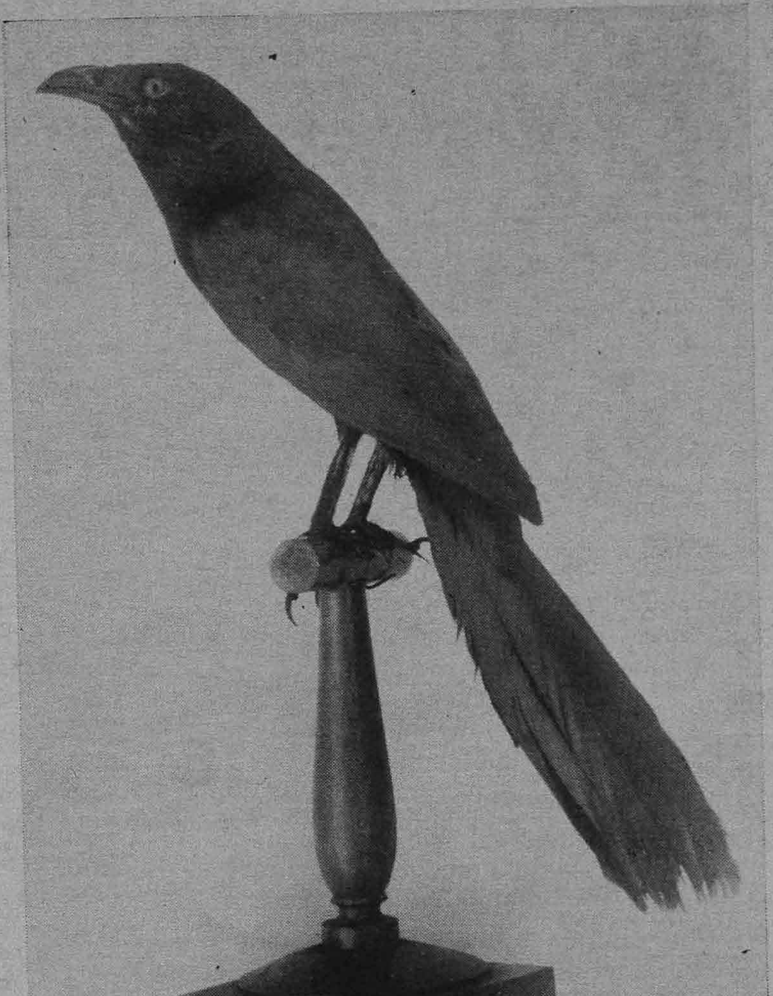


Fig. 29. Centropus sinensis parroti :
The Southern Crow-Pheasant.

Fig. 30. Psittacula eupatria nepalensis :
The Alexandrine Parakeet or Large Indian Parakeet.

eggs are blue and are laid in the nests of Babblers and Laughing Thrushes.

THE RED-WINGED CRESTED CUCKOO

The Red-winged Crested Cuckoo (*Clamator coromandus*) is a handsome bird readily distinguished by its pointed crest, rufous-coloured wings, black body, buff and white under parts and long tail. It is rather an uncommon bird in South India, but it has been recorded on several occasions from Madras City, Tiruchirapalli and the Nilgiris. It is said to be a winter visitor to Ceylon, where it occurs fairly commonly. It usually collects in small flocks and mostly inhabits forested country, especially at the foot of the hills. It has a loud, harsh, screaming call, mostly in the breeding season. It feeds mostly on termites, caterpillars and locusts, but fruit and berries are also eaten. It lays its pale blue eggs mostly in the nests of Laughing Thrushes. A few specimens have been captured in the Museum compound in Madras.

THE EMERALD CUCKOO

The Emerald Cuckoo (*Chalictes maculatus*) is a beautiful bird with a brilliant glossy green plumage with metallic golden bronze reflections. It is said to occur (according to the *Fauna of British India*) only in the Himalayas, from Kumaon to Assam, but it has been recorded from Adyar in Madras, thus extending its recorded range of distribution to Southern India as well. It is shy and retiring in its habits and inhabits only thickly forested regions where it keeps mostly to the tops of lofty trees. It utters a shrill, somewhat musical call consisting of three notes in succession. It feeds mostly on caterpillars, cicadas and other insects. Its flight is very rapid and powerful. It lays its eggs in the nests of the Sunbirds and Warblers.

THE VIOLET CUCKOO

The Violet Cuckoo (*Chalictes xanthorhynchus xanthorhynchus*) is another beautiful, but equally rare, species of Cuckoo originally described as occurring only in Assam and

Bengal within Indian limits (according to the *Fauna of British India*) but the single male specimen of this species exhibited in this Gallery is from Perambur in Madras. Its range of distribution therefore appears to extend also to South India. It is distinguished by its deep glossy violet purple plumage. Its habits are much the same as those of the Emerald Cuckoo, but it appears to be more confined to the foot-hills and sometimes occurs even up to an altitude of 5,000 feet. The eggs are laid in the nests of the Spider-hunter.

THE INDIAN KOEL

The Indian Koel (*Eudynamis scolopacea scolopacea*) is one of our common and most familiar birds frequenting gardens, groves and open country, especially in regions where large trees with rich foliage abound. The male has a glistening black plumage, with a yellowish green bill, while the female is markedly different, being brown, spotted and barred with white. It is entirely arboreal and never descends to the ground. It is silent in winter, but during the breeding season it is noisy, when the male utters its familiar call which rises from a low note (*kuoo* . . . . . .)to a high pitch through several successive notes of increasing pitch. The female only utters a sharp, rapidly repeated note resembling the syllables *kik-kik-kik.* Its food consists chiefly of banyan and peepal figs, but berries, insects and caterpillars are also eaten. Its flight is straight and swift, accompanied by powerful and rapid strokes of the wings. It generally lays its eggs in the nest of the House Crow or occasionally in that of the Jungle Crow. The young Koel manages to evict its rightful foster-brothers while they are yet very young. Several specimens, both male and female—all from Madras—and an egg of this species are exhibited.

Subfamily PHAENICOPHAEINAE

This Subfamily includes the Sirkeer Cuckoos and the Malkohas. These Cuckoos are non-parasitic in their breeding habits, and have very short, rounded wings, long, graduated tails, and unlike as in the true Cuckoos, the tarsi are not feathered. Their nests are rather flimsy and saucer-shaped, built in trees.

THE SOUTHERN SIRKEER CUCKOO

The Southern Sirkeer Cuckoo (*Taccocua leschenaultii leschenaultii*) is a comparatively rare bird, somewhat resembling the Crow-pheasant in its general build, with a long, heavy, graduated tail with white tips to the tail feathers, and a brown and rufous plumage with the feathers finely streaked with black. It is found throughout India except the North-western regions and occurs singly or in pairs mostly on the ground in broken scrub jungle and thinly wooded areas. It is largely terrestrial and stalks about among the undergrowth and low bushes searching for its prey which consists of insects, lizards, fruit and berries. It is able to run on the ground very well, but its flight is weak. Its call is a peculiar, loud, sharp, chuckling note uttered occasionally. In South India it is found from the plains up to an altitude of 6,000 feet in the Nilgiris.

THE SMALL GREEN-BILLED MALKOHA

The Small Green-billed Malkoha (*Rhopodytes viridirostris*) is a somewhat robustly built bird about the size of the Common Mynah, with a long, graduated, white-tipped tail, greenish grey plumage, bluish face and a rather heavy, characteristic, bright apple green bill. It frequents scrub jungle or thick bamboo jungle and bush-covered forest and is seldom seen in the open. In South India it is mostly insectivorous, feeding on large insects and caterpillars, but in Ceylon it is said to feed almost entirely on fruits. Its flight is weak, but it is good at skulking and making its way rapidly through the bushes and undergrowth. It is usually silent and utters a low croak only occasionally, especially when alarmed.

Subfamily CENTROPINAE

This Subfamily comprises the Coucals or Crow-pheasants which are non-parasitic in their nesting habits and are mainly terrestrial birds. They are remarkable for the long, straight claw on the inner hind toe. The wings are short and rounded, but the tail is long and broad. They build globular nests in trees.

THE COMMON CROW PHEASANT OR COUCAL

The Common Crow Pheasant or Coucal (*Centropus sinensis*) is a rather large, glossy, black bird, with bright chestnut wings and a long, broad, black, graduated tail and is found throughout India and Ceylon, and based on size and colouration, three races are recognized.

The typical form of the Common Crow Pheasant or Coucal (*Centropus sinensis sinensis*) is Northern Indian in its distribution and ranges roughly from Sind and Kashmir in the West through the Himalayas to Eastern Assam, Bengal and Bihar in the East. An egg of the typical Northern race is exhibited.

THE SOUTHERN CROW-PHEASANT

The Southern Crow-pheasant (*Centropus sinensis parroti*) is the race that is commonly met with in South India and Ceylon but does not range as far north as the above-mentioned typical form. The Southern Crow-pheasant is a very common resident bird found in South India both on the hills and in the plains. It frequents open country and may be commonly seen around cultivation and human habitations. It is largely terrestrial and often skulks its way slowly through the bushes and undergrowth with its long tail rather loosely trailing low, but it can also hop briskly among the branches of trees, in search of grasshoppers, beetles, caterpillars, field mice, liazards and even eggs and young of other birds. Its call is a deep, resonating "*hoot-hoot*" repeated quickly. It is non-parasitic in its nesting habits and builds its own large, globular nest of leaves and twigs. Its eggs are chalky white.

ORDER PSITTACIFORMES

The Parrots

Parrots constitute a distinct Order of birds. Their nearest relatives appear to be the Owls. Parrots are among the most familiar birds known, many species being popular as cage birds. The beak is large, stout, strong and hooked and with the upper mandible moveably articulated

to the skull and strongly curved downwards. The tongue is thick and fleshy. The feet are zygodactylic. Their flight is swift and powerful. They feed on grain, flower buds, fruit, nuts and nectar. Many species are gregarious, occurring in flocks and are usually very noisy. They lay white eggs in hollows excavated in the trunks and branches of trees.

This Order comprises two families, of which only one, the Psittacidae, comprising the Parakeets and Loriquets, are represented in South India and Ceylon, and specimens of several species belonging to this family are exhibited in this Gallery.

Family PSITTACIDAE

The characters of this family are more or less the same as those of the Order described above. In this family the tongue is somewhat finger-shaped.

About four species of Parakeets—all belonging to the genus *Psittacula*—and one species of the Loriquet (Genus *Coryllis*) alone are represented in South India, and specimens of all these species are exhibited in this Gallery.

THE ALEXANDRINE PARAKEET OR LARGE INDIAN PARAKEET

The Alexandrine Parakeet or Large Indian Paraleet (*Psittacula eupatria nepalensis*) is a large, beautifully grass-green Parakeet with a short, massive, hooked, red bill and a prominent maroon patch on the shoulder on each side. It is found practically throughout the Indian Union, and usually frequents wooded country, orchards and cultivated regions, being often met with in parties of three or four, feeding on fruit, berries and grain. Occasionally it occurs in large flocks which cause considerable damage to fruit plantations and cultivated crops. It has a swift and graceful flight, and a deep, powerful voice. They collect in enormous numbers in their favourite roosts on large avenue trees with dense foliage. They are generally kept as cage birds and can be easily tamed, though they are not good talkers. This is the largest of the Indian

Parakeets. A male and female specimens from Nallamalais are exhibited.

THE ROSE-RINGED PARAKEET

The Rose-ringed Parakeet (*Psittacula krameri manillensis*) is one of the commonest and perhaps the most familiar of all our Indian species of Parakeets. The male bears a characteristic black and rose-pink ring round the neck. It is a resident bird occurring practically throughout the Indian Union. It is common in all open, well wooded country as well as around towns and villages. These Parakeets are well known for their swift, graceful and direct flight, and loud, screaming calls. They generally collect in large flocks, often in company with Crows, Mynahs and other birds at certain favourite roosting places, doing considerable damage to ripening grain and fruit. They are popular as cage birds and are often taught to "talk".

THE WESTERN BLOSSOM-HEADED PARAKEET

The Western Blossom-headed Parakeet (*Psittacula cyanocephala cyanocephala*) is distinguished from the preceding species by its smaller size and by the male having a bluish red head and maroon patches on the shoulders. The female is readily distinguished from the male by its bluish grey head and the absence of maroon patches on the shoulders. This species is found in Ceylon and throughout India in all well wooded parts up to the foot of the Himalayas. It prefers, as a rule, more thickly wooded country than the preceding species, and is generally seen in small parties, but sometimes they collect in immense flocks and cause havoc to ripening crops. They also feed on the nectar of the flowers of the red cotton tree, etc. Their flight is extremely swift and their call consists of a shrill, musical, single-note scream.

THE BLUE-WINGED PARAKEET

The Blue-winged Parakeet (*Psittacula columboides*) is distinguished from the preceding species by the head, neck and plumage of the upper back and breast being pale purplish grey, the presence of a green patch on the forehead

and a black and green collar round the neck in the male. It is a common resident bird confined to the South West Coast of India from South Travancore as far north as Poona and extending eastwards to Mysore, Nilgiris and the neighbouring hills, and occurs mostly on the slopes of the hills up to an altitude of about 4,500 feet. It is more entirely a forest bird than the preceding species and often collects in small flocks in the thickest jungle, keeping to the highest branches, and feeds chiefly on fruit. It seldom causes any damage to crops.

THE MALABAR LORIQUET

The Malabar Loriquet (*Loriculus vernalis rubropygialis*) is a small, pretty, bright grass-green Parrot about the size of a sparrow, with a short, square tail and a crimson-coloured rump. It is the Southern race of the Indian Loriquet and is confined to the Nilgiris and adjoining hills of South India and the South West Coast of India from Cape Comorin to Bombay in the North. This is popularly known as the "Love Bird" and is arboreal, frequenting fruit and flower-bearing trees with dense foliage in groves, orchards and thin deciduous forest where their colour harmonizes perfectly with the green of the foliage. It feeds on fruits and flower buds and possibly also on the nectar from flowers. Its flight is swift and its call consists of a pleasant, sharp, musical chirping note uttered both during flight and while feeding. It sleeps hanging upside down like a bat. Three specimens, including one from Palni Hills, are exhibited.

ORDER STRIGIFORMES

The Owls

Owls constitute a very distinct group of birds with several well marked common characters. They are mainly nocturnal birds of carnivorous habits with strong, hooked beaks and powerful feet bearing strong, curved claws. The outer toe is reversible and may be directed either forward or backward at will. The head is large, with the face flat and forming a well marked, rounded, facial disk, the feathers of the face radiating away from the orbits. The

eyes are large and forwardly directed. The plumage of owls is rather soft, loose and voluminous, the wings being long, broad and rounded at the tips. There is a curious external ear developed in owls, unlike as in other birds, and in many species there are also erectile ear-tufts of feathers.

Owls have a variety of strange, weired cries, uttered mostly at night and this, coupled with their unusual facial expression and large, staring eyes, have made them objects of superstition and ill omen from the earliest times.

Owls feed on small mammals such as rats, mice, squirrels, etc., and birds, but smaller prey such as lizards and large insects like beetles and grasshoppers are also eaten. Most species are beneficial to man and agriculture on account of the large number of vermin they destroy.

Owls lay white eggs, either in deserted nests of other birds or in cavities and hollows in trees, cliffs and old and ruined buildings. These nests are usually filthy, being filled with pellets of indigestible matter voided out through the mouth by the owls. The young are born blind and helpless.

According to the earlier classification, Owls were classified into two distinct families, the Tytonidae, comprising the Barn Owls and the Asionidae, including all the rest of the owls, but the present trend is to regard all owls as constituting a single family, the Strigidae, which is divided into two Subfamilies, namely, the Tytoninae, corresponding to the Tytonidae and the Striginae corresponding to the Asionidae of the earlier system of classification.

Family STRIGIDAE

The characters are more or less the same as those described for the Order Strigiformes.

Subfamily TYTONINAE

This Subfamily includes the Barn Owls or Screech Owls in which the facial disk is large and well developed, completely surrounded by a ruff of stiff feathers and there

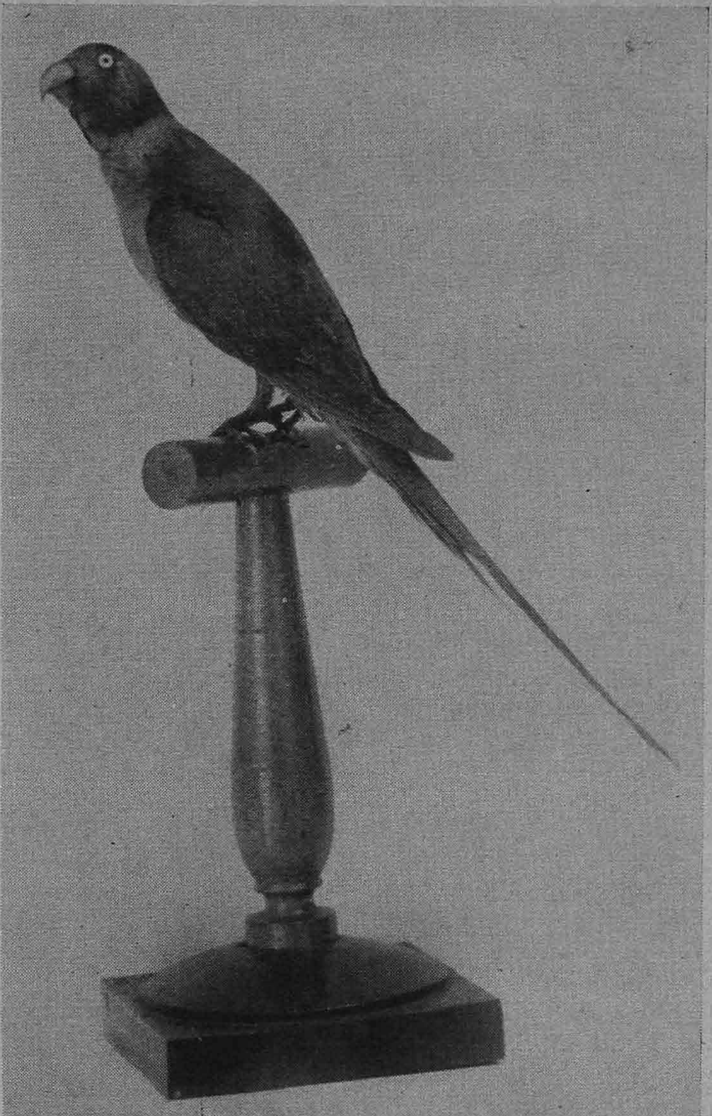


Fig. 31. Psittacula cyanocephala cyanocephala:
The Western Blossom-Headed Parakeet.

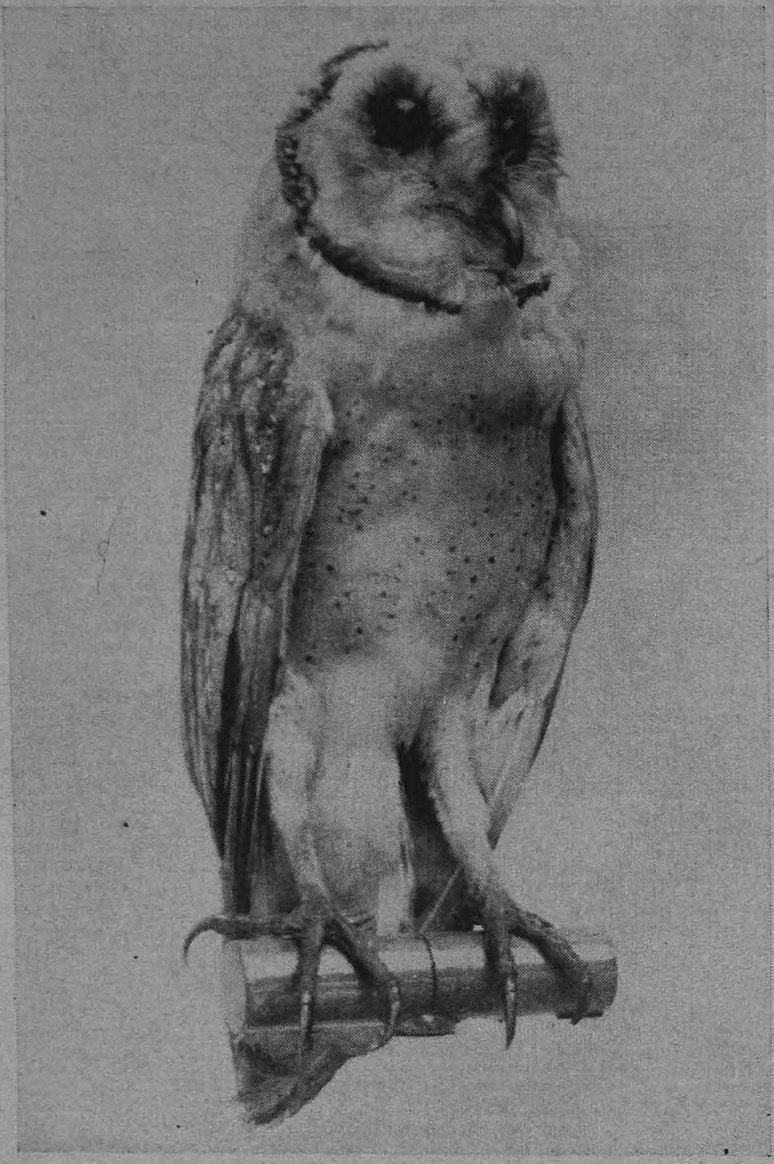


Fig. 32. Tyto alba stertens :

The Indian Barn Owl or Screech Owl.

Fig. 33. Bubo zeylonensis zeylonensis :
The Indian Brown Fish Owl.

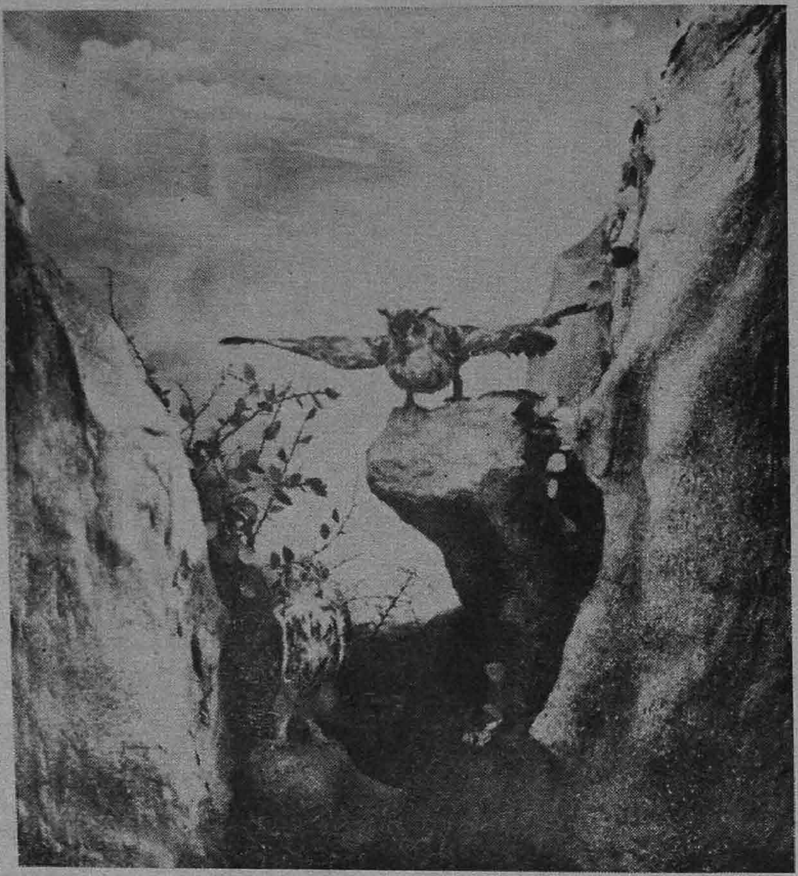


Fig. 34. Bubo bubo bengalensis :
The Indian Great Horned Owl (Diorama).

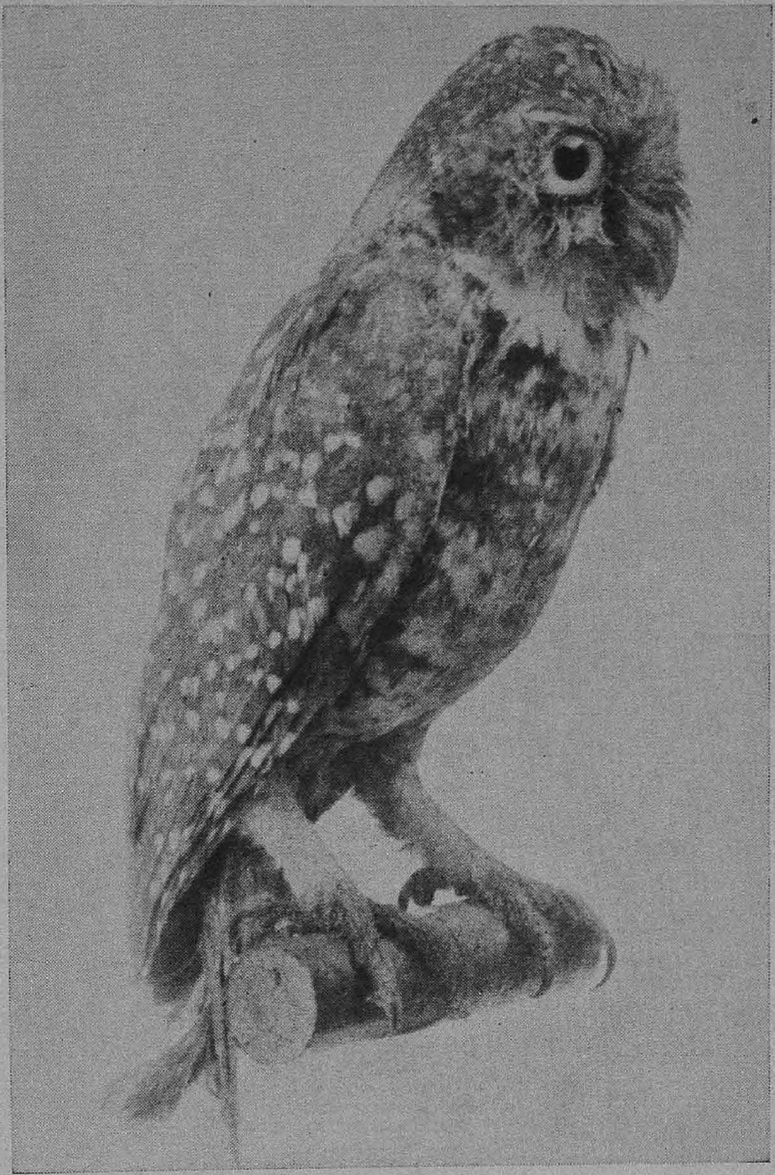


Fig. 35. Athene brama brama :

The Southern Spotted Owlet.

Fig. 36. Falco peregrinus japonensis :

The Eastern Peregrine Falcon.

are no ear tufts. The beak is weak and compressed and the wings are long and pointed.

THE INDIAN BARN OWL OR SCREECH OWL

The Indian Barn Owl or Screech Owl (*Tyto alba stertens*) is a moderately large-sized Owl with a golden buff and grey plumage, finely stippled with black and white markings and silky white below, tinged with buff. It occurs throughout India and Ceylon and is one of the most familiar of our Indian Owls, often found in the vicinity of human habitations and inhabiting old, ruined buildings, forts, etc. It is entirely nocturnal, being active only during the nights and spending the day time dozing in some dark crevice. Its call, uttered after dark, consists of a variety of weired and unpleasant screams and screaches. It feeds almost entirely on rats and mice, acting as a check on these pests and is thus highly beneficial to agriculture. The flesh and bones of the Barn Owl are valued as a cure for rheumatism and paralysis.

Subfamily STRIGINAE

This Subfamily comprises all the rest of the Owls, comprising the Bay Owls, Wood Owls, Fish Owls, etc., and corresponds to the family Asionidae of the former system of classification. The characters are rather varied in this large and heterogeneous group. The Bay Owls are not represented in South India. In the Eared Owls and Wood Owls, the ear orifice is larger than the eye and the facial disk is large and well marked, while the Fish Owls, Horned Owls, etc., (*Ketupa, Bubo,* etc.), are larger birds with well marked ear tufts, but in which the facial disk is not well marked and the ear orifice is smaller than the eye.

THE SHORT-EARED OWL

The Short-eared Owl (*Asio flammaeus flammaeus*) is a widely distributed species occurring all over Europe and Asia and is a winter visitor to the plains and hills of India. It is chiefly found in grassy plains, wide, open spaces with low bushes or cultivated land and may be seen

to be active even during the day, although it is largely, nocturnal. It flies well by day, and when pressed with hunger it will sometimes hunt for food even during the day time. It feeds on all kinds of small birds and mammals, and even on reptiles and insects, but field mice appear to form a favourite part of its diet.

THE BROWN WOOD-OWL

The Brown Wood-Owl (*Strix leptogrammica indranee*) is confined to Ceylon and South India, ranging as far north as Mahableshwar. It is essentially a bird of the forests and well wooded country and is fairly common on the Nilgiris and the slopes of other hills in South India. It generally keeps to the sholas during the day time and comes out at dusk to feed. It feeds on small birds, lizards and, in captivity, even on fish. It has the habit of perching on roof tops at night and hooting in a weird manner and it has often been dreaded as a bird of ill omen. Its flight is swift and powerful. A single male specimen from the Shevroy Hills is exhibited.

THE MOTTLED WOOD OWL

The Mottled Wood Owl (*Strix ocellata*) is found throughout India from the Himalayas, southwards to the base of the Nilgiris and frequents almost any type of well wooded country, but its favourite haunts appear to be among mango groves. It feeds mostly on rats, mice and small squirrels. It has a loud, hooting call, but in the breeding season it utters a screaming cry. It appears to be fairly common in the neighbourhood of Madras. Two specimens, a female from Red Hills and a male from Singaperumal Koil near Chingleput are exhibited.

THE INDIAN BROWN FISH OWL

The Indian Brown Fish Owl (*Bubo zeylonensis zeylonensis*) is the Southern race of the typical Northern Brown Fish Owl and occurs all over Ceylon and Southern India, being found in Travancore, Mysore, Malabar and on the Nilgiris and Palani Hills. It is a fairly large-sized, heavily-built Owl and is nocturnal, haunting both forest and open

but well wooded country, but it generally frequents groves and other places close to water as its food consists mainly of fish and crabs. When fish is not available, it has been known to feed on lizards, snakes, birds and even small mammals. Its flight is rapid and powerful, though apparently rather laboured. Its call consists of a deep, hollow, resonating, moaning sound uttered at dusk or during the night.

THE INDIAN GREAT HORNED OWL

The Indian Great Horned Owl (*Bubo bubo bengalensis*) is found practically throughout India, but not in Ceylon. It is said to be very common in North and Central India, and is distinguished from the Fish Owl by its legs being fully feathered. It is mainly nocturnal and frequents fairly well wooded, but open, cultivated country, its favourite haunts being ravines, rocky cliffs, hills and banks of hill streams. It spends the day mostly hiding under some rocky ledges or bushes and begins to be active at night, but it may also be seen feeding during the day. It feeds on small mammals, birds, reptiles, frogs and large insects, and occasionally also on fish and crabs. Its call is a deep, resounding, booming disyllabic note. In South India it is said to be rare on the Nilgiris, but several specimens have been secured on the rocky slopes of the hills at Sittannavasal near Pudukkottai in Tiruchirapalli District. The breeding season lasts from November to April. In addition to individual specimens and an egg, a fine diorama depicting a pair of the Horned Owls in their natural haunts is also exhibited.

THE DUSKY HORNED OWL

The Dusky Horned Owl (*Bubo coromandus coromandus*) is found throughout the greater part of the Indian Peninsula and frequents well wooded areas especially where there is plenty of water. They are as active during the day as during twilight hours, and may be frequently seen feeding even in broad daylight. They are fierce and aggressive in their disposition and will attack both birds and samll manimals, but they feed mainly on crows. They also eat frogs, lizards, snakes and occasionally fish. Its

call is a deep, guttural croak. Only an egg of this species is exhibited.

THE SOUTHERN INDIAN SCOPS OWL

The Southern Indian Scops Owl (*Otus scops rufipennis*) is the Southern race of the much more widely distributed typical form, the Eastern Scops Owl (*Otus scops pulchellus*) which is a winter visitor to the extreme North West of India, Sind and Kandahar and which breeds in South Russia, Persia and Palestine. The present Southern form occurs on the West Coast down to South Travancore, and in the Carnatic Coast from Madras southwards. It is mainly inscetivorous, and its call is said to be a low, mild, hooting note. It lays its eggs in holes in walls, old wells, or buildings and trees and sometimes in old nests of other birds. A single specimen from Madras is exhibited.

THE SOUTHERN SPOTTED OWLET

The Southern Spotted Owlet (*Athene brama brama*) is the commonest and bestknown of our Owls. It is a small, rather stout, greyish brown owl with white spots and a large, round head with large, yellow, staring eyes directed forwards. It frequents open country in the plains and foothills, generally near human habitations. It is tame and confiding and is often very noisy. It feeds principally on insects, but will also readily feed on small birds and mammals. It is active mainly during the twilight and at nights. Its call consists of a variety of loud, harsh, chattering cries.

THE BARRED JUNGLE OWLET

The Barred Jungle Owlet (*Glaucidium radiatum radiatum*) is found throughout the greater part of India in well wooded country and in groves. It is particularly fond of teak and bamboo forest. In South India, this species seems to be common on the Nilgiris. It is largely crepescular and nocturnal, but may be seen to be active even during the day time. It is mainly insectivorous, but also feeds on small mammals and many small species of

birds. It is essentially a bird of the forests and is seldom seen in gardens. Its call is a loud, long-drawn out and not unpleasant note resembling somewhat the call of the Jungle Fowl or the Sarus Crane when heard at a distance. It is a noisy bird, its chattering cries being heard both during day and night Two specimens and an egg of this species are exhibited.

THE SOUTHERN INDIAN BROWN HAWK OWL

The Southern Indian Brown Hawk Owl (*Ninox scutulata hirsuta*) is an owl of rather slender build, slightly smaller than the House Crow, with long wings and without ear tufts. It is confined to Ceylon and Southern India, including Malabar, and Travancore as far north as the southern part of Bombay State. It occurs in well wooded country on the plains and also on the hills up to an altitude of 6,000 feet. It is generally found in jungles and thick groves and is said to be a rather shy bird. Its favourite haunts are in the forest belts lining the banks of rivers or around tanks. It feeds principally on insects which it chases and captures mostly on the wing. It has a variety of mellow, musical calls, heard chiefly at night or at dusk or early in the mornings. Two specimens from Madras are exhibited.

ORDER FALCONIFORMES

The Raptors, or Diurnal Birds of Prey

The Falconiformes, or the diurnal birds of prey form a very distinct group adapted for a carnivorous and predaceous mode of life. The beak is strong and prominently hooked, with the upper mandible considerably longer than the lower. The feet are strong and furnished with powerful claws. They have a very keen eye sight. Of all the other birds, they are most closely related to the Owls, with the Osprey forming probably a connecting link. They resemble the Owls in their strong, hooked beak and powerful, curved claws, but unlike the Owls, their eyes are directed laterally and not forwards and the plumage is firmer and more compact. The young, when hatched, are helpless and covered with down. The nest is usually a

large, clumsy structure made of twigs and placed in a tree or a rocky ledge.

The Indian species of this Order were till recently grouped into three distinct families, as follows:—

(1) The Pandionidae, including the Osprey;

(2) The Gypidae or Aegypidae, including the Vultures; and

(3) The Falconidae, including the rest of the Order, comprising the hawks, eagles, falcons, etc.

Recently, however, there has been a slight change in the system of classification of the Order Falconiformes, and the birds have been regrouped into three families, as follows—

(1) The Pandionidae, including the Osprey;

(2) The Accipitridae, comprising the Vultures, Eagles, Kites, Harriers, Hawks, Buzzards and Bazas; and

(3) The Falconidae, comprising the Falcons only.

For the sake of convenience, however, and for the sake of being consistent with the order followed in the Fauna of British India according to which the birds belonging to most of the other groups in this Gallery are arranged, the birds of the Order Falconiformes have also been arranged in this Gallery according to the earlier and better known system, and the same system has therefore been necessarily followed in the present Guide book.

Family PANDIONIDAE

This family includes the Osprey which forms a link, as it were, between the Owls on the one hand, and the diurnal birds of prey on the other. The members of this family differ from all the rest of the Order Falconiformes in the absence of an after-shaft to the feathers and in possessing a reversible outer toe. The Osprey is the sole representative of this family and is nearly world-wide in its distribution.

THE OSPREY

The Osprey (*Pandion haliaetus haliaetus*) is a fairly large, dark brown bird, somewhat intermediate in size between the Brahminy Kite and the Sea Eagle, with a characteristic brown and white head and white under parts. It is a widely distributed species, being found practically throughout the world, but it is a winter visitor to India, being found commonly along the sea coast or on large rivers and tanks where an abundance of fish can be procured. Its food consists more or less entirely of fish. It may be generally seen flying up and down over the water, looking out for fish, occasionally hovering in mid air like a Kestrel, or perched on some dead tree or a piece of rock overhanging water, keeping an incessant watch for any passing fish, and when a fish is sighted within its range, it plunges and dives into the water with half-closed wings to seize the fish. It grasps the fish in its powerful claws and then carries it to some rock or other convenient spot where it tears up and devours it at leisure. Occasionally Ospreys have been known to be drowned in their attempt to capture fish beyond their strength. Ospreys breed in Europe between April and June, and visit India only in the winter.

Family AEGYPIIDAE (= GYPIIDAE)

The Vultures

The Vultures are distinguished from the other diurnal birds of prey by the head and neck being bare, or only partly covered, with short down and by the absence of any true feathers on the crown. They feed on carcases and rubbish usually on the outskirts of towns and villages and are useful scavangers. Specimens of all the common species of Vultures occurring in South India are exhibited.

THE BLACK, OR KING VULTURE OR PONDICHERRY VULTURE

The Black, or King Vulture or Pondicherry Vulture (*Torgos calvus*) is a large-seized black Vulture with a rather bulky body about the size of a Peacock. It is easily

distinguished by the deep scarlet head, neck and legs. It is found throughout India and Burma, but not in Ceylon. Its distribution extends also into Siam and the Malay Peninsula. It is a bird of open, lightly wooded and cultivated country, generally seen singly or in pairs perched on an exposed stump of a tree, or circling high in the air. As usual with Vultures, it feeds on carcases and is often found in company with other Vultures when feeding. Its flight is powerful and it can take off from the ground with a few wing strokes even when fully gorged. Although it is generally reputed to be bold and pugnacious, actually it is very timid and cowardly.

THE INDIAN LONG-BILLED VULTURE

The Indian Long-billed Vulture (*Gyps indicus indicus*) is another, somewhat rare species found all over India south of the Indo-Gangetic Plain. In South India it is said to breed on some of the cliffs on the Northern face of the Nilgiris. It has also been recorded from the Palni Hills. Its habits are much the same as those of other species of Vultures. It is a good scavenger, often gathering in considerable numbers and feeding voraciously on carcases, but is rather cowardly and does not usually attack other living creatures. A single male specimen from St. Thomas' Mount is exhibited.*

THE INDIAN WHITE-BACKED VULTURE

The Indian White-backed Vulture (*Gyps bengalensis* or *Pseudogyps bengalensis*) is the commonest species of Vulture met with in the Indian plains, and is found practically through out India, living by scavenging on carcases and garbage on refuse heaps on the outskirts of towns and villages. Large numbers often collect at animal carcases and it is remarkable how rapidly and thoroughly they are able to dispose of the carcases of large animals, in the precincts of villages. As scavengers, these Vultures are

* A specimen of the closely allied species, the Indian White-backed Vulture, with the wings fully spread out to illustrate its maximum wing span, is exhibited in the General Gallery adjoining the Gallery of Skeletons, Integumentary Structures, etc., among the exhibits illustrating "Flight in Animals".

Fig. 37. Falco tinnunculus:

The Indian Kestrel.

Fig. 38. Aquila rapax vindhiana:

The Indian Tawny Eagle.

highly beneficial to man. Their eyesight is extremely keen and the effortless ease and grace with which they glide through the air is admirable. The Indian White-backed Vulture is chiefly distinguished from the Indian Long-billed Vulture (which it resembles closely) by the presence of only twelve tail feathers (instead of fourteen as in the latter) and in having the head and neck almost naked, and without any hairy down feathers on the crown and nape.

THE WHITE SCAVENGER VULTURE OR PHAROAH'S CHICKEN

The White Scavenger Vulture or Pharoah's Chicken (*Neophron percnopterus ginginianus*) is a somewhat smaller Vulture readily distinguished by its dirty white plumage, naked yellow head and bill, the latter being relatively long and slender. It occurs practically throughout India, and may be seen haunting the vicinity of human habitations and the outskirts of towns and villages, sometimes in large numbers and serving as a useful scavenger, feeding on refuse, human excreta and offal. It often associates with kites and crows to feed on animal carcases. It sometimes walks about on the ground with a characteristic, high-stepping gait. An adult male and a young specimen are exhibited.

Family FALCONIDAE

Falcons, Eagles, Hawks, Kites, Buzzards, Bazas, etc.

As mentioned earlier, the family Falconidae, as defined at present, includes only the Falcons and Kestrels, the remaining diurnal birds of prey (except the Osprey which is placed in a separate family) being grouped in the family Accipitridae. However, according to the earlier system (followed in the present Guide book and in the arrangement of the exhibits of this Order in the Gallery) the family Falconidae includes all the diurnal birds of prey except the Osprey and the Vultures, and comprises a wide range of predaceous birds such as the Falcons, Kestrels, Eagles, Hawks, Kites, Buzzards, Bazas and Harriers. They are distinguished from the Vultures in having the head and neck feathered. They are practically all carnivorous, and

the majority of them feed on living prey. Some of the smaller species are partly insectivorous, while others, like the Kites, feed also on carrion.

Since the members of this family fall naturally into a few well defined groups, it would be convenient to deal with the species grouped accordingly in the present Guide book.

Group I. FALCONS AND KESTRELS

In the Falcons the bill bears a single notch on the upper mandible, and there is no crest. The wings are long and the nostrils round. Many of the species have been trained to hunt down other birds by falconers, falconry being a favourite sport in many countries. The typical falcons prey on birds swooping down on their victims while in flight, killing them with a powerful, ripping stroke of the hind claw. Kestrels, however, hover over the ground, hunting for small mammals, upon which they drop silently from above.

THE EASTERN PEREGRINE FALCON

The Eastern Peregrine Falcon (*Falco peregrinus japonensis*) is a winter visitor to India occurring practically throughout the Indian Union as far south as Ceylon, and breeding in Northern Asia during the summer. It is usually found in the vicinity of the sea coast, jheels or rivers, preying on all sorts of game birds such as ducks, teals and other water birds as well as partridges and small mammals, and is remarkable for the speed and accuracy with which it is able to strike at its prey. It is a favourite sporting bird trained by falconers to strike at Herons, Storks, Cranes, etc. It breeds during March and April, placing its nest on a ledge of rock or a crevice.

THE SHAHIN FALCON

The Shahin Falcon (*Falco peregrinus perigrinator*) is a rather rare and shy bird which frequents high, rocky hills and inaccessible ledges of rocky cliffs. It feeds exclusively on birds, especially Pigeons, Parrots, Swallows and Swifts, hunting its prey chiefly in the early morning and

in the evening. It is extremely swift and bold in swooping down on its prey and is hence a great favourite with Indian falconers, who often train it to catch Patridges and Florikins. Its nest consists of a mass of sticks placed on the ledge of a rocy cliff.

THE LAGGAR FALCON

The Laggar Falcon (*Falco biarmicus jugger*) is one of our commonest Falcons, occurring throughout the Indian Union from about 2,500 feet in the foot-hills of the Himalayas down to the extreme south of India. It frequents open country and thin scrub jungle, but avoids heavy forest and usually pairs for life, the birds of the pair keeping very much together, especially when hunting. The pairs act together while hunting, chasing and swooping down on the prey with amazing speed and endurance. It feeds mainly on pigeons and other small game birds, but lizards, rats and insects are also eaten. Its call is a shrill, prolonged note and its nest is a platform of twigs placed high up in a tree or rocky ledge on a cliff. A specimen from Pulicat and an egg of this species are exhibited.

THE INDIAN HOBBY

The Indian Hobby (*Falco severus rufipedoides*) is a beautiful little Falcon, much smaller than the Shahin Falcon, but with relatively longer and narrower wings. It is among the most graceful of the diurnal birds of prey and perhaps the swiftest among them in flight. It is a bird of well wooded country, feeding mainly on small birds, bats and large insects. It is a bold and courageous bird, capable of extremely rapid and powerful flight, and is crepescular in habits, being generally active early in the mornings and late in the evenings, feeding on insects and small birds on the wing.

THE TURUMTEE OR RED-HEADED MERLIN

The Turumtee or Red-headed Merlin (*Falco chiquera chiquera*) is a handsome little Falcon with an ashy grey plumage and is easily recognized by its bright chestnut head. It is a bird of open country, frequenting cultivated

fields, gardens and groves of trees and avoiding heavy forest. It pairs for life, and the birds of the pair usually hunt together, sometimes hovering in mid-air like a Kestrel for a few seconds. It feeds principally on small birds, rats, mice, lizards and insects.

THE EASTERN RED-LEGGED FALCON

The Eastern Red-legged Falcon (*Falco vespertinus amurensis*) is a small, Kestrel-like Falcon, breeding in Northern China in June and visiting India in winter. It generally flies in flocks, and when migrating, may be seen in large numbers. At night it roosts in large flocks. It is insectivorous and feeds mainly at dusk over grass lands. They are caught in large numbers by the hill tribes in Assam from their roosting places in bamboo jungle, and are eaten by the villagers and even sold to the people in the plains as pigeons. In its usual haunts it is highly gregarious. Its flight is similar to that of the Kestrel, when hawking for insects.

THE INDIAN KESTREL

The Indian Kestrel (*Falco tinnunculus*) is a small-sized, rather slenderly built Falcon, with a brick-reddish brown upper plumage and greyish head and a rather long, fan-shaped tail. It is a winter visitor found throughout the Indian Union, arriving from the Himalayas and farther north, but the race *objurgatus*, which is smaller and darker and to which the specimens exhibited here belong, is resident in South India and Ceylon. It inhabits open country and grassy meadows, and is generally seen perched singly on the same mound or bush day after day looking out for its prey. It is noted for its characteristic habit of hovering in mid-air and swooping down silently on its prey. Kestrels generally feed on field mice, lizards, crickets, locusts and other large insects, but they occasionally attack poultry and game birds. Specimens from Palni Hills, Nilgiris and Madras are exhibited.

Group II. EAGLES

The true Eagles (included in the genus *Aquila*) are large, powerful birds with a strong, somewhat lengthened

bill, curved from the cere The legs (tarsus) are feathered all round up to the toes, and the claws are curved, strong and sharp.

THE INDIAN TAWNY EAGLE

The Indian Tawny Eagle (*Aquila rapax vindhiana*) is the commonest and most widely distributed species of Eagle found practically throughout the drier parts of India It frequents open, dry country and thin scrub jungle on the plains, but is never found in forest or heavily wooded country. It is often found in the vicinity of villages and cultivated areas and feeds largely on carcases or by robbing animals or birds which other birds of prey have captured. It also feeds on all sorts of small mammals and birds, especially sick and disabled ones and reptiles, etc., and frequently proves to be a menace to poultry. It has a variety of loud, raucous, cackling calls.

THE GREATER SPOTTED EAGLE

The Greater Spotted Eagle (*Aquila clanga*) unlike the preceding species, frequents well wooded country and prefers the vicinity of cultivation, especially of wet paddy fields, or of tanks, marshes and swamps. It feeds mainly on frogs and fish, but birds and small mammals are also sometimes killed and eaten. It is sluggish in its habits and may be seen seated for hours on its favourite perch. A specimen of this Eagle and an egg of a related species, the Brook's Eagle (*Aquila fulvescens*) are exhibited.

Group III. HAWK EAGLES, SERPENT EAGLES, BOOTED EAGLES, FISHING EAGLES, etc.,

The Hawk Eagles and their nearest allies are distinguished from the true Eagles by their slimmer build, longer tails and more slender tarsi, which, however, are clothed with feathers all round, as in the true Eagles. The Hawk Eagles and Booted Eagles are birds of large size, with strong, powerful beaks and claws and with a fine, bold, sweeping flight. Their call is generally a loud, clear note.

THE BOOTED EAGLE

The Booted Eagle (*Hieraetus pennatus*) is a somewhat small-sized Eagle with a wide range of distribution, occurring in Europe, Africa and Asia, and is mainly a winter visitor to India. It is a bold and daring predatory bird, quite powerful for its size, preying on all sorts of small mammals and birds. It hunts on the wing and often attacks poultry and domestic pigeons. It usually inhabits open, thickly wooded country, especially around villages and cultivated fields. It is said to breed north of the Himalayas.

THE INDIAN BLACK EAGLE

The Indian Black Eagle (*Ictinaetus malayensis perniger*) is a graceful long winged bird, with a fine, dark, blackish brown upper plumage. The lower plumage is not so dark. It is exclusively a forest bird, being mostly found only in the interior of thick, evergreen forest, but occasionally it may be seen at the edge of the forest. It feeds on worms, frogs, lizards and large insects, and also on the eggs and young of other birds. Occasionally it preys on larger birds such as Pheasants and Jungle Fowls. Its flight is magnificent, being normally slow, deliberate and easy, but it is capable of flying extremely fast, and is quite active in its native haunts in the forest.

THE INDIAN CRESTED HAWK EAGLE

The Indian Crested Hawk Eagle (*Spizaetus cirrhatus cirrhatus*) is a forest-loving Eagle with usually a brown upper plumage and white below, with characteristic black, longitudinal streaks on the throat and chocolate-coloured streaks on the breast. It is also readily distinguished by the long, narrow crest projecting behind, on the head. It is found practically throughout India, often occurring singly in well wooded country. It preys on all sorts of game birds up to the size of a Jungle Fowl or Pheasant and on small mammals. From its favourite perch on some high tree in the forest it keeps a sharp watch and swoops down powerfully on its victims as soon as they are sighted. Its call is a loud, shrill, high-pitched scream. Its

nest is a huge platform of twigs and sticks placed high up in a tree in the forest. Two specimens, one of which is a male from Nallamalais, are exhibited.

THE LESSER CRESTED SERPENT EAGLE

The Lesser Crested Serpent Eagle (*Spilornis cheela melanotis*) is found practically throughout India south of the Himalayas, generally in forested areas and adjoining open country. It may often be seen singly or in pairs soaring most of the time at immense heights over wooded country, uttering its shrill, screaming cries. It feeds on frogs, lizards, rats and snakes, and occasionally even on birds of fairly large size like the Jungle Fowl, but its favourite food appears to be snakes, and rat snakes as large as seven or eight feet long are often attacked and eaten with ease. This is the Southern race of the typical Indian Crested Eagle (*Spilornis cheela cheela*) occurring in North India. An adult male from Wynaad and a young male from Madras are exhibited.

THE WHITE-EYED BUZZARD EAGLE

The White-eyed Buzzard Eagle (*Butaster teesa*) is a small, greyish brown Hawk with a white throat, found throughout India in the drier parts. It is a permanent resident on the plains, inhabiting open, cultivated country and scrub jungle and sometimes, ascends the hills, but avoids dense and humid forest. It is a rather sluggish bird, and spends most of its time perched on dry trees, wooden posts, etc., from which it swoops down on its prey. It feeds mostly on locusts, grasshoppers, crickets and other large insects as well as on mice, frogs, lizards and other small reptiles. Its call is a low, plaintive, mewing call, but the young are very noisy birds.

THE WHITE-BELLIED SEA EAGLE

The White-bellied Sea Eagle (*Haliaetus leucogaster*) is a fine, large Eagle about the size of a turkey cock. The adults are white with dark ashy grey back and wings. It is found chiefly on the sea coast, and sometimes also along the great tidal rivers, feeding mainly on fish, sea snakes

and crabs, but lizards and frogs are also eaten. Occasionally it may attack domestic fowls and other birds and even feed on carrion. Its call is a loud, clanging cry and its nest consists of a huge structure composed of sticks placed in a large tree and is used year after year.

THE PALLAS' OR RING-TAILED FISHING EAGLE

The Pallas' or Ring-tailed Fishing Eagle (*Haliaetus leucoryphus*) is a large, dark brown Eagle, with a pale, golden brown head and a broad, white band across the tail. It occurs in North India, including Assam and Bengal, and is not found in South India and Ceylon. Unlike the preceding species, this Eagle feeds on freshwater fish and is therefore found almost invariably around large rivers and jheels. It is a powerful bird attacking its prey by hurling itself down on its victim and carrying it off in its strong talons. It feeds mainly on fish, snakes, rats, crabs and occasionally even on water birds like Coots, etc., and even on carrion. Its nest is a massive platform of sticks placed on a large tree. Only an egg of this species is exhibited.

Group IV. THE KITES

The Kites and their allies are distinguished by their long, pointed wings and distinctly short tarsi (legs) which are feathered only about half way down. The bill is moderate, with a distinct festoon and the toes and claws are rather short.

This group is represented in South India by the Brahminy Kite, the Common Kite and the Black-winged Kite— all of which are exhibited in this Gallery.

THE BRAHMINY KITE

The Brahminy Kite (*Haliastur indus*) is one of our most familiar birds of prey, readily distinguished by its bright rusty brown upper plumage and white head, neck and breast. It is found throughout India, frequenting open country in the vicinity of towns and villages, especially along the sea coast and near large rivers, marshes and tanks. It is invariably found in large numbers around

Fig. 39. Haliastur indus:

The Brahminy Kite.
(Diorama)

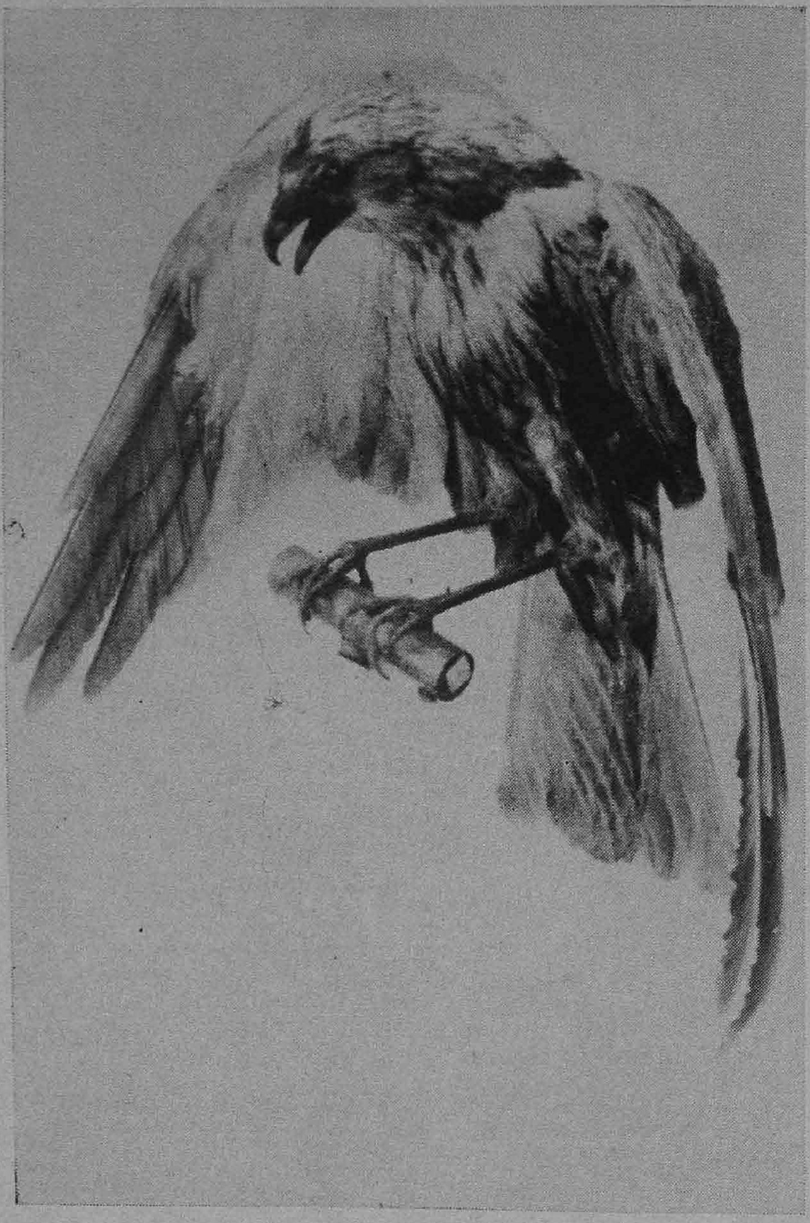


Fig. 40. Circus aeruginosus aeruginosus :

The Marsh Harrier.

Fig. 41. Buteo rufinus rufinus :

The Long-Legged Buzzard.

Fig. 42. Accipiter nisus nisosimilis :

The Asiatic Sparrow Hawk.

harbours, sea ports and fishing villages, picking up scraps and garbage, and thus acts as a good scavenger. It resembles the Common Kite in its flight and habits, especially in seizing food in its claws as it swoops down on its prey. It feeds mainly on fish, crabs, frogs, etc., but small snakes and even winged termites merging from their nests are sometimes eaten. The breeding season is from December to February in the South, but somewhat later in North India. Two eggs, occasionally three, are laid in a stick-nest placed on a tree. This bird is a terrible menace to domestic chicken. During the day time it is generally solitary, but at night they seem to flock to a common roosting place. This bird is associated with Vishnu in Hindu Mythology and hence its popular name "Brahminy Kite". A diorama of this Kite with its nest is exhibited, in addition to a separate female specimen in the regular systematic series.

THE COMMON KITE OR PARIAH KITE

The Common Kite or Pariah Kite (*Milvus migrans govinda*) is perhaps the commonest and most familiar Indian bird of prey. It is a large, dark brown bird, readily distinguished by its forked tail. It is found throughout India, chiefly near human habitations, and may often be seen perched on roofs or on tree tops or circling overhead even in thickly populated towns. It acts as a useful scavenger in towns and villages, feeding on all sorts of refuse and rubbish. It often swoops down with remarkable speed and accuracy on scraps of food and offal even in busy thoroughfares and around bazaars and houses. It is extremely bold, often snatching morsels off a dish, sometimes even from a person's hands. It is omnivorous, feeding on offal, refuse earthworms, winged termites, lizards, mice, etc., and is even known to steal chicken from poultry farms. Its flight is easy and graceful and it soars slowly about in large circles. Its breeding season is from January to March or April, and its nest is a large, clumsy structure of sticks mixed with rags, etc.

THE BLACK-WINGED KITE

The Black-winged Kite (*Elanus caeruleus vociferus*) is a handsome little Kite, ashy grey above, with conspicuous

black patches on the shoulder and white below, found practically throughout India. It frequents well wooded country and is rather partial to grassland and cultivation, but avoids heavy forest. It is more or less crepescular in habits, though it is active also during the day time. From its favourite perch on the top of a tree or a post, it keeps a sharp watch for its prey and pounces on them. It seldom soars or flies for long distances, but hovers in mid-air like a Kestrel. Its food consists mostly of locusts, mice, lizards, etc. Its flight is sluggish, being rather slow and deliberate, and its call is a shrill squeal. The breeding season is from December to March, when it builds its nest consisting of a loose, untidy mass of twigs. A single female specimen from Kodambakkam is exhibited.

Group V. HARRIERS

Harriers are medium-sized hawks of rather slender build, with long wings and tails and long, slender legs with the tarsi not covered with feathers. Their plumage is soft and silky and their beak is small and curves regularly from the base. There is a curious ruff of short, crisp feathers across the throat and up the sides of the neck and face. Harriers usually glide slowly over marshes or open, grassy fields at a height of only a few yards above the ground. They all belong to a single genus, *Circus*.

Three species common in South India, the Pale Harrier, the Pied Harrier and the Marsh Harrier are exhibited.

THE PALE HARRIER

The Pale Harrier (*Circus macrourus*) is a slender, pale, ashy grey Kite with long, narrow, pointed wings with black tips, breeding in Eastern Europe, Northern Africa and Central Asia and migrating to India and Ceylon in winter. It is generally found singly, gliding slowly and gracefully over cultivated fields and grassland, and may often be seen hawking about for its prey actively over rice fields and meadows. It arrives in India by about the middle of September and leaves again by the end of March. It feeds on lizards, frogs, mice, grasshoppers or other insects and generally prefers to perch on a mound

on the ground rather than on a branch of a tree or a bush. A male and a female specimen from Singaperumalkoil, Chingleput District, are exhibited.

THE PIED HARRIER

The Pied Harrier (*Circus melanoleucos*) is one of the commonest Harriers visiting India during the winter months, from October to April, when it may be found all over Eastern Bengal, Assam and Burma. It is frequently found more on the plains than on the hills and is more partial to swamps than the preceding species. It generally hunts for its food gliding gracefully over wide stretches of rice fields or grassy meadows, occasionally dropping suddenly on a grasshopper or some other similar prey. It feeds on frogs, lizards, small snakes, grasshoppers and such other small creatures. It perches on the ground and at nights it roosts on open fields and marshes often in association with other species of Harriers. Its habits are similar to those of other Harriers, and it is often impossible to distinguish them from the other species. A male specimen and a female one from Chingleput are exhibited.

THE MARSH HARRIER

The Marsh Harrier (*Circus aeruginosus aeruginosus*) is another common winter visitor, occurring both on the hills and in the plains. The adult male of this species is mainly rufous brown with silvery grey wings and tail. It usually frequents swamps, marshes, paddy fields and sometimes dry grass lands, feeding on frogs, fishes, insects, rats, etc., and being a far more powerful species than the other Harriers, it can at times be extremely bold and will often attack other birds and even carry off a wounded snipe or teal. The nest is made of straw or grass and placed among the reeds on the ground.

Group VI. BUZZARDS

Buzzards are closely allied to the Eagles but differr from them mainly in their less powerful beaks and claws and in their partially naked tarsi. Another distinctive feature is that although the colouration varies in different species, there is no distinct immature plumage.

Two species, the Long-legged Buzzard and the Desert Buzzard, both of which are winter visitors to India, are exhibited.

THE LONG-LEGGED BUZZARD

The Long-legged Buzzard (*Buteo rufinus rufinus*) is a rather heavily built bird breeding in Europe, Asia Minor and Central Asia, and visiting India in winter where it has been recorded only as far south as the Central Provinces, but curiously enough the single male specimen exhibited is from Chingleput and is probably a stray straggler which had wandered to South India beyond its normal range. This fine Buzzard is common in the wide, semi-arid plains of North Western India and is most abundant where field rats and lizards occur in plenty. It is a rather sluggish bird, slow and heavy in its movements and often prefers squatting lumpily either on the ground or on some mound or tree. But it can at the same time soar and wheel gracefully in the sky for long periods. It feeds on frogs, snakes, mice, rats, lizards, etc., and small birds and even carrion. Its cry resembles a long, wailing note.

THE DESERT BUZZARD

The Desert Buzzard (*Buteo vulpinus vulpinus*) is another winter visitor to India, breeding in summer in Western Asia and South Eastern Europe, Asia Minor and Palestine. It is about the size of the Brahminy Kite and very variable in colouration and in posture and silhoutte it somewhat resembles the Serpent Eagle. Its habits are rather like those of a Harrier and it may be seen circling over marshes and bare lands hunting for mice, frogs, lizards and insects. It is a rather sluggish bird and is usually found singly, during the heat of the day, perched on the ground or on a low tree or bush. A single female specimen from Pallavaram is exhibited.

Group VII. THE HAWKS

Hawks are birds of prey generally of a comparatively small size and are distinguished by their short, rounded

wings and long tarsi. The tail is fairly long and square at the ends and the bill is short and stout curving sharply from the base and with a well marked festoon. The females are generally larger than the males. Hawks are bold hunters, capturing their prey by a quick dash. They always nest in trees.

Specimens of all the five common South Indian species, namely, the Goshawk, the Crested Goshawk, the Shikra, the Sparrow Hawk and the Besra Sparrow Hawk are exhibited.

THE GOSHAWK

The Goshawk (*Accipiter gentilis schvedowi*) is a migratory bird found in Europe, Western Siberia, Asia Minor and Palestine and migrating southwards in winter to Northern Africa and North Western Himalayas. It is more or less entirely a forest bird, inhabiting well wooded country. Its flight is quite powerful and from its favourite perch it keeps a careful watch for its prey and swoops down on them boldly. It feeds on rabbits, squirrels, rats and mice as well as on game birds of all types. Its call is a loud, screaming note.

THE CRESTED GOSHAWK

The Crested Goshawk (*Accipiter trivirgatus peninsulae*) is a closely allied species occurring in Travancore, Nilgiris and the hill ranges of Southern India; eastwards, its distribution extends to Malay Peninsula and the Philippines. It is entirely a forest bird, and is found both on the plains and in the hills up to an elevation of about 3,500 feet or even higher. It is generally found on tall trees and feeds chiefly on lizards and frogs, but small mammals and birds are also eaten. It is a shy bird, often remaining well concealed among the foliage of tall trees. Its call consists of a shrill, monosyllabic note.

THE INDIAN SHIKRA

The Indian Shikra (*Accipiter badius dussumieri*) is a moderate-sized Hawk, pale ashy bluish-grey above and white below, readily distinguished by the rusty brown cross bars on the breast and abdomen and the broad, blackish

cross bands on the tail. It is found singly or in pairs in open, lightly wooded country, cultivated areas and grassland. Its flight is very swift and powerful and it generally takes its prey by surprise, swooping down on them suddenly from its concealed perch. It feeds on lizards, rats, frogs, locusts and also on small birds. The Shikra has often been used successfully in falconry as it can be easily trained to hunt down birds such as quails and other small game birds. Its call is a loud and harsh, shrill, double whistle. An egg and a mounted specimen of this species are exhibited.

THE ASIATIC SPARROW HAWK

The Asiatic Sparrow Hawk (*Accipiter nisus nisosimilis*) is a winter visitor to India, breeding in North and Central Asia and migrating to the South in winter when it is found practically all over India. It is more commonly met with in the hills where it is often found in open, lightly wooded country and in groves and orchards. It feeds on sparrows and other small birds such as snipes on which it swoops down with a powerful, dashing flight, and sometimes small mammals and reptiles are also eaten. A single male specimen from Red Hills is exhibited.

THE SOUTHERN BESRA SPARROW HAWK

The Southern Besra Sparrow Hawk (*Accipiter virgatus besra*) is very similar in general appearance to the Shikra, but may be distinguished from it by its slimmer body, longer tail and longer and more slender legs and toes. This species is confined to Ceylon and South India and is said to be common in Travancore and on the Malabar Coast, but seems to be rarer in other localities. It is essentially a forest bird and is very noisy, frequently uttering its loud, squealing call. It feeds on lizards, insects and also small birds and mammals. Its flight is swift and powerful. Male and female specimens from Madras are exhibited.

Group VIII. HONEY BUZZARDS

The Honey Buzzards are readily distinguished from all other birds of prey by the presence of close, overlapping,

scale-like feathers on the sides of the head, the lores and the eyelids. These birds feed largely on honey combs and the larvae of bees and wasps and the close, scale, scale-like feathering affords adequate protection against the stings of bees and wasps. Unlike other birds of prey, the bill is weak, rather long and not strongly hooked.

Only one species of this Group, the Indian Crested Honey Buzzard, occurs commonly in India and extends to Ceylon as well, and this is exhibited.

THE INDIAN CRESTED HONEY BUZZARD

The Indian Crested Honey Buzzard (*Pernis ptilorhynchus ruficollis*) occurs in Ceylon and practically throughout India from the extreme South northwards to Assam, Bihar, Bengal and the Punjab. It frequents open, well wooded country, but avoids heavy forest or very dry areas. In South India it is often found in the lower slopes of the Nilgiris and may be often seen in gardens and groves. It is a bold and fearless bird, being often found near towns and villages and even entering gardens and orchards. Its flight is straight and direct, but not by any means fast. It feeds mainly on bees and their honey, wax and larvae, but its diet also includes snakes, lizards, frogs, small mammals and birds and even the eggs and young of other birds. Its call is a shrill, short whistle, repeated in quick succession. Three specimens, of which two are from Madras, are exhibited.

Group IX. BAZAS

Bazas differ from all the preceding groups of the Birds of prey in having the upper mandible of the bill furnished with two saw-like teeth on each side, just opposite the end of the lower madible. The crown bears a long crest and the tail and toes are fairly long. They are essentially forest birds. Only two species occur in India, of which only one, the Indian Black-crested Baza, which is the commonest Indian species of Baza, is exhibited in this Gallery.

THE INDIAN BLACK-CRESTED BAZA

The Indian Black-crested Baza (*Aviceda leuphotes leuphotes*) is a rather shy, forest bird, often seen in small parties, circling leisurely over the tree tops in heavy forest. In South India it has been specifically recorded from Travancore and Nellore, but the single specimen exhibited is from Madras City. It feeds mainly on insects such as grass-hoppers, locusts, cicadas and termites but sometimes lizards, bats, mice, shrews and tree frogs are also eaten. It is mostly crepescular in habits (being active only towards dusk or early mornings) and it has a curious, plaintive, screaming call.

ORDER GALLIFORMES

Pheasants, Fowls, Quails and Partridges.

This Order includes the game birds such as the Pea Fowl, Jungle Fowl, Pheasants, Spur Fowls, Quails and Partridges, and is richly represented in almost all parts of the world. Most of these birds are esteemed for their high edibility and the majority of them lay their eggs on the ground. The young are hatched fully covered with down or feathers and are capable of fending for themselves within a few moments after they are hatched. An oil gland is usually present. Many species are noted for their brilliantly coloured plumage. All the Indian species of this Order belong to a single family, the Phasianidae.

Family PHASIANIDAE

This family includes small to large-sized, mainly terrestrial birds, distinguished by their rather compact, plump form, rather small heads and short, rounded wings. The legs are bare and have four toes of which the hinder one is small and set at a higher level on the legs than the three front ones. The claws are strong, curved and blunt and adapted for scratching the soil. In the male (and sometimes also in the female) there is a sharp, horn-covered, bony spur above the hind toe, used for fighting. All are game birds and are highly edible.

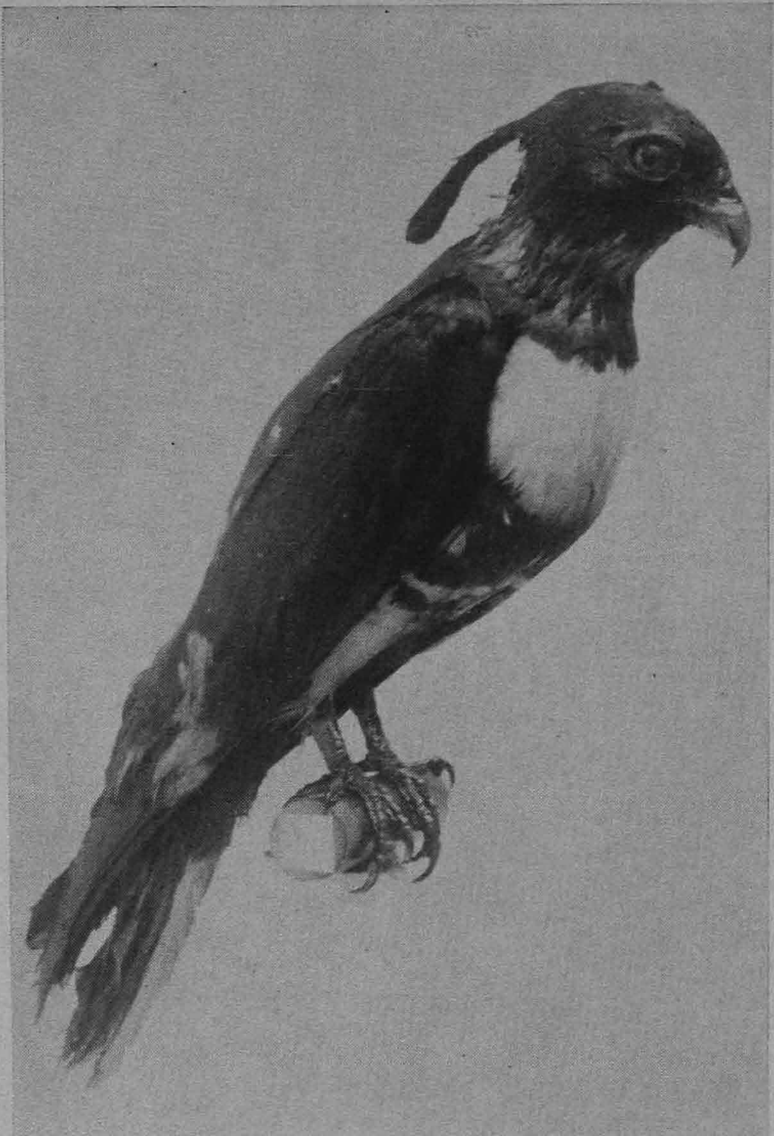


Fig. 43. Aviceda leuphotes leuphotes :

The Indian Black-crested Baza.

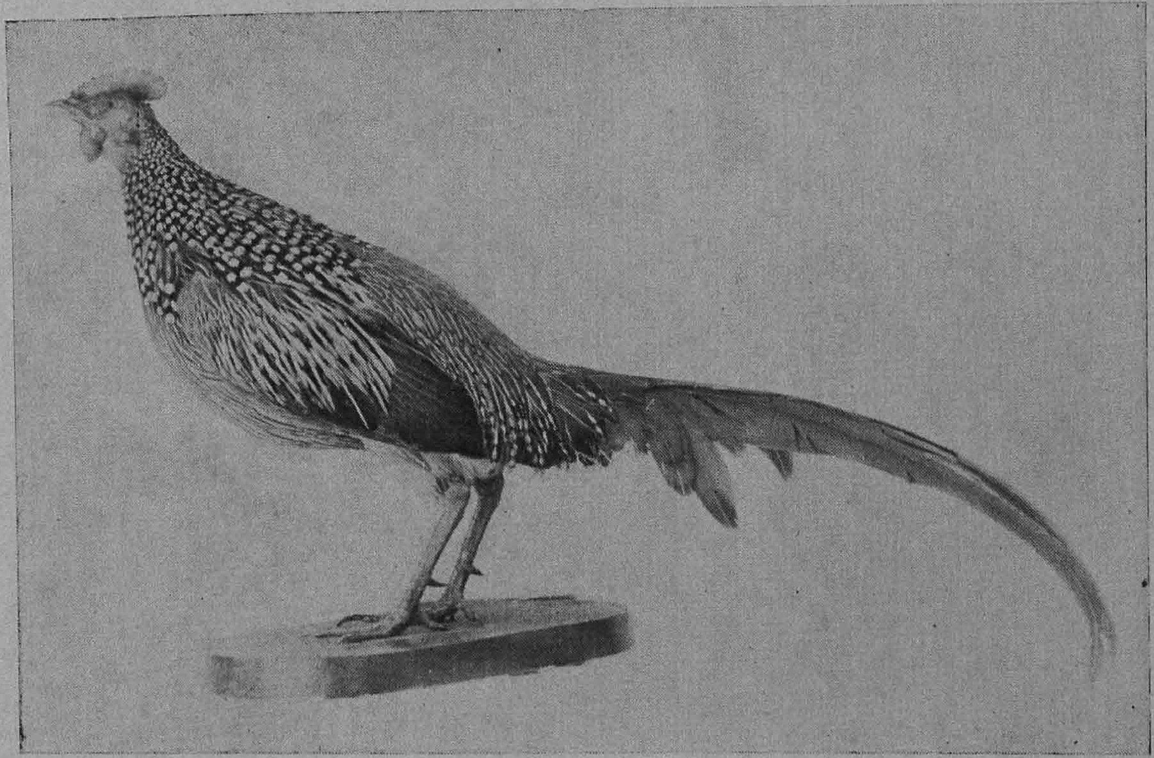


Fig. 45. Gallus sonneratii:
The Grey Jungle Fowl.

Fig. 46. Gallus sonneratii:
The Grey Jungle Fowl
(Diorama).

THE COMMON INDIAN PEA FOWL

The Common Indian Pea Fowl (*Pavo cristatus*) is one of the best known of the Indian game birds and is remarkable for the gorgeous, ocellated "tail" and the brilliant, metallic greenish blue plumage of the adult male. The hen is smaller, much duller in colour and lacks the long ornamental "tail". The Pea Fowl is found throughout India, inhabiting dense scrub jungle and grassy meadows, preferably in the vicinity of streams and rivers. In a semi-wild state they are found in the neighbourhood of villages and temples and in gardens and groves. They are generally polygamous, being found in small parties consisting of one cock and four or five hens, and are extremely shy and wary, hiding away in the undergrowth at the least suspicion. They are omnivorous, feeding on grain, shoots, insects, lizards and snakes, etc., and they have a loud, harsh, screaming call resembling the syllables "*may—awe*". The cock spreads its beautiful tail feathers fanwise and struts in front of the hen in a brilliant courtship display. A cock with its ornamental "tail" fully spread out, a hen and an egg are exhibited in a somewhat simplified dioramic setting.

THE COMMON RED JUNGLE FOWL

The Common Red Jungle Fowl (*Gallus gallus murghi*) is the species found in Northern India, especially in the Himalayan foothills, eastwards to Assam and southwards as far as the Godavary River. It is found in pairs or small parties consisting of a cock and three or four hens in forest, but it often feeds also in cultivated regions and stubble fields at the edge of the forest or in jungle clearings. It comes out to feed early in the morning and again in the afternoon, resting during the heat of the day. It is a very shy bird, often roosting in trees and bamboo clumps. It is the ancestor of all domestic breeds of fowl, and its call also resembles that of our domestic cock, but shriller. Only an egg of this species is exhibited.

THE GREY JUNGLE FOWL

The Grey Jungle Fowl (*Gallus sonneratii*) is very similar to the preceding species, but the cock is more greyish,

with a metallic black, sickle-shaped tail. This species occurs throughout Southern and Western India in hilly and well wooded country. It is specially common among Lantana scrub growing in forest clearings. It is an extremely shy and alert fowl, running to cover at the least suspicion. It is generally found singly or in small parties in forest and scrub jungle and comes out to feed only in the early mornings and late evenings and remains hiding away in thick cover during the heat of the day. It feeds on grain and seeds, insects, grubs, small fruits and berries and tender shoots and roosts in trees and bamboo clumps. This is the common South Indian species of the Jungle Fowl occurring in the scrub jungles. A male and a female with an egg are exhibited in the systematic series and another pair are displayed in a diorama showing them in their natural haunts.

THE NEPAL KALIJ PHEASANT OR COMMON KALIJ PHEASANT

The Nepal Kalij Pheasant or Common Kalji Pheasant (*Lophura leucomelana leucomelana*) is a rather heavily built, powerful bird, with short, rounded wings, found in the Himalayas in Nepal, ascending the hills to an altitude of about 9,000 feet. The genus *Gennaeus* includes the Kalij or Silver Pheasants which are widely distributed in the Oriental Region, and among the Indian Pheasants they are the most closely related to the Jungle Fowl. This species is the best known of all Himalayan Pheasants and is found commonly in the heavy undergrowth on the sides of the ravines and hill streams. It is essentially a terrestrial bird, living and feeding mostly on the ground. Its food consists of grain, seeds, berries and tender shoots, and a variety of insects, worms, larvae and grubs. A single female specimen which died in the Madras Zoo in 1956 is exhibited.

THE RED SPUR FOWL

The Red Spur Fowl (*Galloperdix spadicea spadicea*) occurs practically throughout the Indian Union and inhabits scrub jungle, bamboo jungle or thin, deciduous forest, particularly the vicinity of old ruins overgrown with jungle and rank vegetation where there is ample cover. The

cock has two to four pointed spurs on each leg while the hen has one or two spurs only. In both sexes there is a naked brick-red patch around the eye. It is usually found in pairs or small parties, scratching on the ground and dry leaves, etc., in search of food. It is very alert and wary and often skulks away under the cover of bushes and thicktes at the least sign of alarm. Its food consists of seeds, berries and insects. A male and a female specimen and an egg of this species are exhibited.

THE PAINTED SPUR FOWL

The Painted Spur Fowl (*Galloperdix lunulata*) is a handsome species with almost the same distribution as the preceding species, but distinguished from it by the cock having a buff-coloured breast with black spots. It frequents almost any type of forest country, but it is partial to rocky jungles and places abounding in tangled thickets and bushes. It is difficult to procure these birds as they fly rapidly and dive deep into some impenetrable thickets. When alarmed, these birds are said to take to trees. Birds found around foot hills always run up-hill when they are disturbed for the first time and then fly swiftly downhill when forced to fly. They feed on grain, seeds and insects They thrive will in captivity, but the males are very pugnacious. The male has a loud, cackling call, very similar to that of the Common Fowl.

THE BLUE-BREASTED QUAIL

The Blue-breasted Quail (*Coturnix chinensis chinensis*) is a tiny species of Quail, not appreciably larger than a sparrow, but much more rotund in shape. It is found practically all over India and Ceylon, and in the South, it is a common breeding bird in Travancore and on the Malabar Coast, but is comparatively rare in and around Madras. It usually lives in pairs or small parties and prefers damp, grassy meadows, paddy fields and margins of weedy tanks, but it is also found in bamboo and thin scrub jungle. It is a shy bird, running to cover at the least suspicion. It feeds principally on grass seeds, berries and insects. Its call is a low, soft, double-whistle note.

THE COMMON OR GREY QUAIL

The Common or Grey Quail (*Coturnix coturnix coturnix*) is a widely distributed species and is an extremely well known sporting bird, found practically throughout India, and in winter its numbers are greatly increased by migratory Quails from Western and Central Asia. In South India and Ceylon it is especially common during winter. It prefers dry cultivated fields, grassland and dry, scrub-grown beds of streams and nullahs, and is particularly fond of cornfields. It is usually found in pairs, but when food is abundant it occurs in large numbers. It is a favourite cage bird and is considered excellent for the table. It feeds mostly on grain, grass seeds, termites, etc., on the ground. Quails are netted alive in enormous numbers. A male, female and an egg of this species are exhibited.

THE BLACK-BREASTED QUAIL OR RAIN QUAIL

The Black-breasted Quail or Rain Quail (*Coturnix coromandelica*) is very similar to the Common Quail, but is distinguished from it by the breast and centre of the abdomen being black. Unlike the preceding species, it is confined to India, and is found practically throughout India, occurring in pairs or small parties in cultivated fields and grassland. It is purely a bird of open country and is often found in the vicinity of houses and villages. It is a local migrant and a common visitor to the plains during the rainy season when it may be seen feeding and sheltering in the luxuriant grass. Several specimens and an egg of this species are exhibited.

THE JUNGLE BUSH QUAIL

The Jungle Bush Quail (*Perdicula asiatica asiatica*) is found more or less throughout India from the plains up to an altitude of about 4,000 feet in the hills. It frequents thin, open, deciduous forest, grassland and rough, stony scrub jungle around villages and is usually found in small flocks of five to twenty individuals feeding in the mornings and evenings in cultivated fields and grass lands, mainly on grass seeds, grain and small insects. They

generally squat on the ground huddled up together in small coveys and fly away suddenly with an exploding whirr of their wings only when approached very closely. They are sociable birds and the males in the breeding season are very pugnacious. A male and female specimen of this species are exhibited.

THE ROCK BUSH QUAIL

The Rock Bush Quail (*Perdicula argoondah argoondah*) is a closely allied species occurring in South India from Madras to the extreme South and is a permanent resident on the plains, found in open, dry grassland and rocky scrub jungle in coveys of six to eight individuals. When flushed, the birds rise with a loud whirring noise of their wings. Their habits are more or less the same as those of the preceding species. Only an egg of this species is exhibited.

THE PAINTED BUSH QUAIL

The Painted Bush Quail (*Perdicula erythrorhyncha erythrorhyncha*) occurs all over South West India from Poona to Travancore and is mostly confined to the hills of South India such as the Nilgiris, Palnis, Wynaad and Western Ghats. It is said to be very abundant on the slopes of the Nilgiris. These Quails are usually found in bevies consisting of about eight to twelve individuals frequenting broken country, cultivation, grass-covered areas and thin, light forest and scrub jungle, and especially places where there is good dense cover, but their favourite resort is rocky ground, interspersed with bushes and clumps of ferns and grass. They feed mostly in the mornings and evenings, on grain, seeds and insects, and are tame, seldom rising unless very closely approached or suddenly disturbed. Two specimens and an egg of this species are exhibited.

THE INDIAN BLACK PARTRIDGE

The Indian Black Partridge (*Francolinus francolinus asiae*) is a handsome bird found throughout North India extending south as far as Kutch in the West and Chilka

Lake in Orissa in the East. It frequents well watered grasslands and scrub jungle and is usually found in pairs or sometimes in small parties of three or four birds. It prefers tall grass and is often found in the foot hills of the Himalayan ranges. It feeds mainly on seed and grain, but it also eats roots, buds, worms and insects. It can run extremely fast an usually affords excellent sport, often rising suddenly with a whirr of their wings singly or in pairs and flying swiftly away. It has a cheerful, musical call. A pair (male and female) are exhibited.

THE ASSAM BLACK PARTRIDGE

The Assam Black Partridge (*Francolinus francolinus melanotus*) is a race of the preceding typical species, confined to Eastern Nepal, Sikkim and the whole of Assam, Manipur and adjacent areas. It occurs largely in the Himalayan foothills where it is particularly common in the tea plantations and their vicinity. Its habits are much the same as those of the preceding typical form. It rises very early in the mornings and during the breeding season it utters a cheerful, musical call. It feeds mainly in the mornings and evenings, in quite open places, but in the immediate vicinity of dense grass or bushes where it can take shelter. A pair of specimens (male and female) recently acquired from Assam are exhibited.

THE SOUTHERN GREY PARTRIDGE

The Southern Grey Partridge (*Francolinus pondicerianus pondicerianus*) is an extremely common resident bird found mostly on the plains in the drier parts throughout India. It is usually found in pairs or in small coveys of four to six individuals inhabiting cultivated regions, grassland, scrub jungle, banks of nullahs and similar situations and commonly also on the outskirts of villages. They are very shy birds, running to cover at the least sign of danger. They roost at nights in thorny trees and bushes. They feed on seeds, grain, shoots and berries and also on maggots and insects such as termites. The call of the male is a high-pitched, shrill, ringing, oft-repeated note. They are netted alive in enormous numbers and are considered excellent for the table. They are easily tamed and often

reared for fighting purposes. Two specimens (a male and a female), an egg and an albino specimen are exhibited.

ORDER HEMIPODII

The Bustard Quails

The Bustard Quails are small birds which resemble the ordinary Quails in general appearance, but are readily distinguished from them by the presence of only three toes, the hind toe or hallux being absent. The females in this Order are larger than the males and often more richly coloured than the males. The young are covered with down feathers when they are hatched and are able to run and fend for themselves as soon as they leave the nest.

This Order comprises only three South Indian species—the Common Bustard Quail and two species of Button Quails—all included in the family Turnicidae. Of these, only the Common Bustard Quail is represented in the Gallery.

Family TURNICIDAE

The characters are more or less the same as those of the Order described above.

THE COMMON BUSTARD QUAIL

The Common Bustard Quail (*Turnix suscitator taigoor*) is a resident bird found on the plains and lower slopes of the hills practically throughout South India. It occurs in all types of country, although it is absent in very dense forests or deserts. It frequents especially dry, grassy places, cultivated regions, open scrub land and thin, deciduous forest. Unlike the normal condition in birds, the female in this species is larger and more brightly coloured than the male. They are found in pairs or small parties of three or four birds and easily skulk away into the undergrowth when approached. They feed on seeds of grass, grain, shoots and insects. Contrary to the normal condition in birds, the female in this species is more pugnacious and does the courting, often uttering its loud, drumming call, while the male incubates the eggs and rears

the young. The females are polyandrous. Three specimens, of which one is a male from Chingleput, are exhibited.

ORDER COLUMBIFORMES

This Order includes the Pigeons, Doves and Sandgrouses. It is divided into two Suborders—

(1) the Columbae, containing the family Columbidae which includes all pigeons and doves; and

(2) the Pterocletes—including the Sandgrouses.

SUBORDER COLUMBAE

Family COLUMBIDAE

This family, comprising the Pigeons and the Doves constitutes a distinct group of birds characterized by rather small heads, heavy bodies, strong wings and well developed tails which can be widely expanded. The beak is straight with the terminal half hard and horny and the basal part swollen and fleshy, on which the nostrils appear as narrow slits. These birds are entirely vegetarian, feeding mainly on seeds, grain, fruit or buds. Their flight is very powerful and swift. They nest in holes in trees or crevices of rocks and seldom lay more than two eggs in a clutch. The South Indian species of this family represented in this Gallery belong to four Sub-families.

Subfamily TRERORINAE

This Subfamily includes the Green Pigeons distinguished by their bright green or yellowish green plumage which often harmonizes perfectly with foliage so as to render them almost invisible when they perch on trees.

THE SOUTHERN GREEN PIGEON

The Southern Green Pigeon (*Treron phoenicoptera chlorigaster gaster*) occurs practically throughout India, being often found in flocks inhabiting well wooded country. They may be seen on avenue trees and in groves and

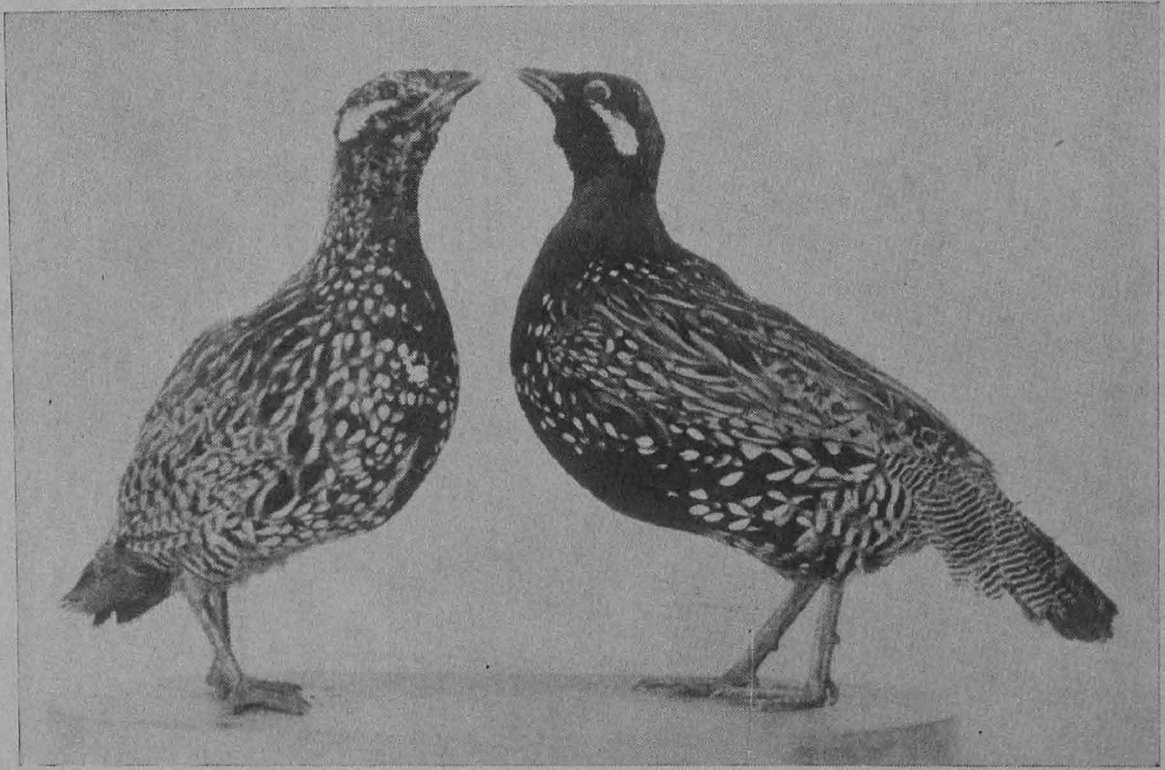


Fig. 47. Francolinus francolinus melanotus:

The Assam Black Partridge.

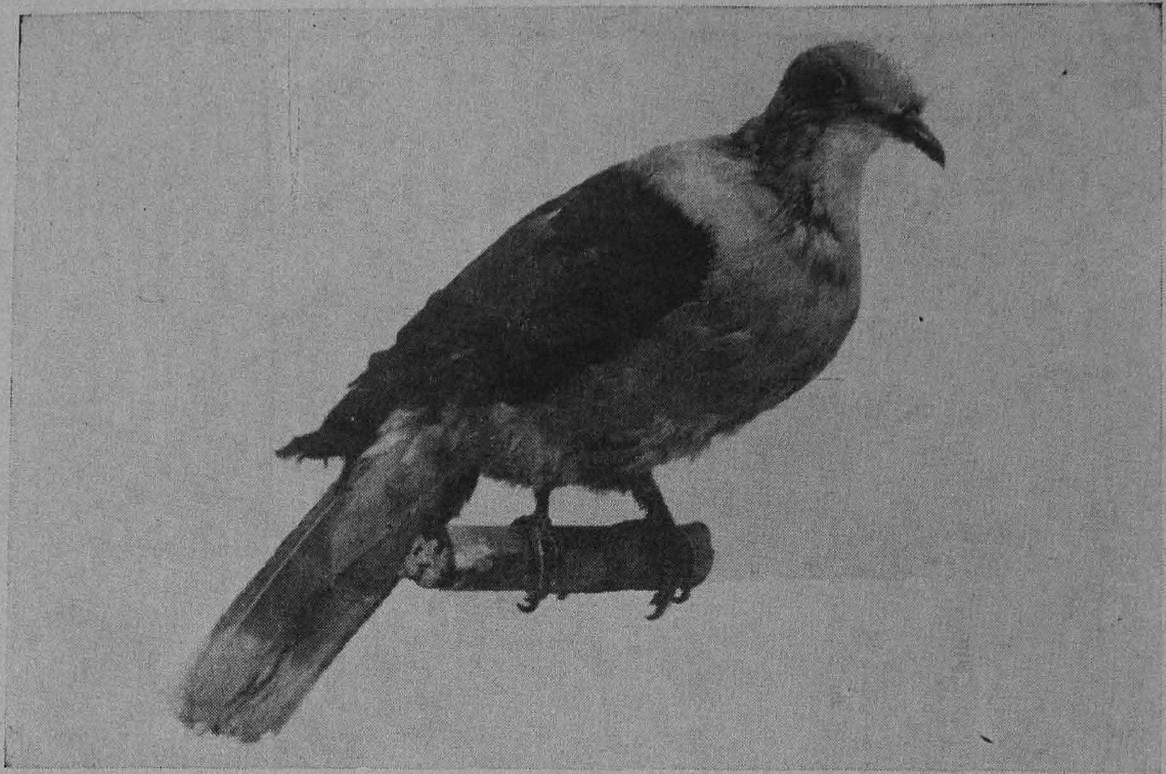


Fig. 48. Ducula badia cuprea :
Jerdon's Imperial Pigeon.

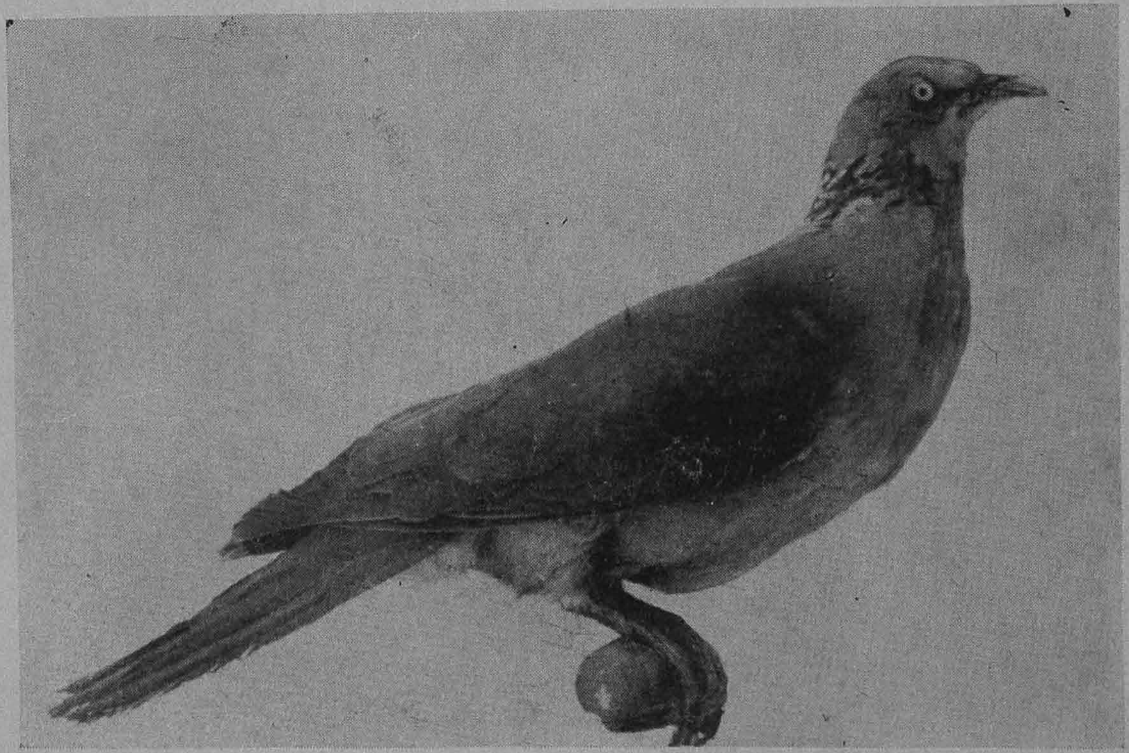


Fig. 49. Columba elphinstonii :
The Nilgiri Wood Pigeon.

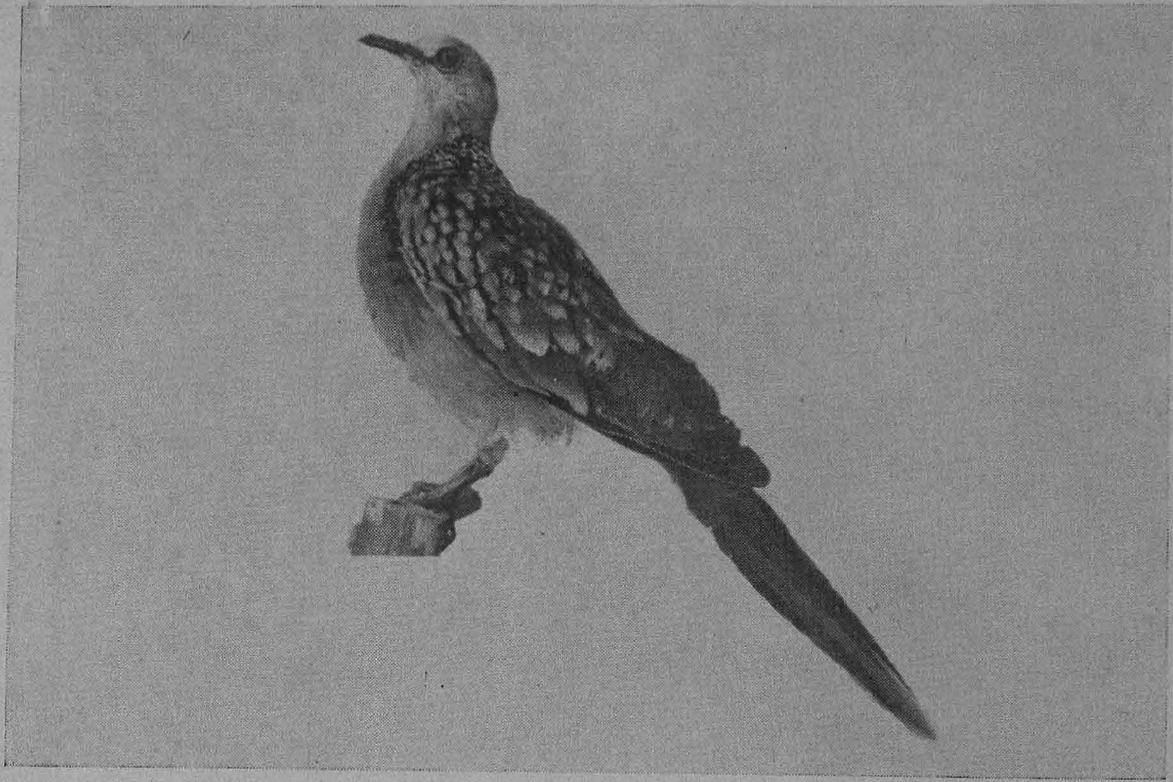


Fig. 50. Streptopelia chinensis suratensis:
The Indian Spotted Dove.

gardens around towns and villages. They gather together in large flocks on banyan and fig trees to feed on the fruit. The colour of their plumage blends perfectly with the green foliage of the trees rendering them almost invisible among the leaves. Their flight is swift and direct and their call is a mellow, whistling note. They are reported to be common in the hills of Southern India. A single specimen and an egg of this species are exhibited.

THE GREY-FRONTED GREEN PIGEON

The Grey-fronted Green Pigeon (*Treron pompadora affinis*) is essentially a forest bird and is common along the entire coast of South India. It inhabits forests both on the plains and on the hills at the lower elevations, up to an altitude of 3,000 feet, but does not seem to congregate in such large flocks as the other species of this genus. It feeds entirely on fruit such as that of the banyan and wild figs. It breeds in February and March when it appears to be extremely common in South Indian forests, especially in the hills. A single male specimen from Kodaikanal is exhibited.

Subfamily DUCULINAE

This Subfamily includes the largest members of the Pigeon family, namely, the Imperial Pigeons. They are arboreal in their habits and feed mainly on fruit. The toes are stout and the soles of the feet are broad and flat. In structure they more or less resemble the Rock Pigeons.

Two species, the Jerdon's Imperial Pigeon and the Indian Green Imperial Pigeon, occur in South India, and specimens of both these species are exhibited.

JERDON'S IMPERIAL PIGEON

Jerdon's Imperial Pigeon (*Ducula badia cuprea*) is an exceptionally large-sized Pigeon with the head, neck and lower plumage (except the chin, throat and lower part of the abdomen) lilac-coloured. The remainder of the plumage is dull greyish brown and the tail is blackish. The lower portion of the abdomen is tinged with buff. This is essentially a bird of forested areas, especially on the

hills, from where it occasionally wanders to the plains, particularly to salt marshes in search of fruits and buds. They are common on the slopes of the Nilgiris and the Wynaad and on the hills of Travancore and Coorg on the Malabar Coast. During the rains large numbers of them descend from the hills to the salt marshes on the plains where they feed on the buds of *Avicennia* and other plants. Their call is a loud booming noise.

THE INDIAN GREEN IMPERIAL PIGEON

The Indian Green Imperial Pigeon (*Ducula aenea sylvatica*) is distinguished from the preceding species by the upper plumage being of a brilliant bronze green colour. It is essentially a forest bird, found singly or in small parties both in the plains and in the hills up to an altitude of 6,000 feet. Occasionally they collect in large flocks, especially where fruit trees abound. It is found practically all over India, but in South India it is common in Travancore and in the forests of the Nelliampathy Valley. In hot weather, it occurs on the salt marshes on the Malabar Coast in large numbers to feed on the buds of *Avicennia*. It can swallow incredibly large-sized fruits. Its call consists of a deep, booming sound which can be heard at a considerable distance. Its flight is swift and powerful and its flesh is more highly esteemed for the table than that of most other Pigeons.

Subfamily PHABINAE

This Subfamily includes the Emerald Doves or Bronze-winged Pigeons. It includes a large number of species from Africa, Asia, Malay Archipelago and Australia, but only one species, the Indian Emerald Dove, occurs in India. The upper plumage has a metallic lustre. The wing is moderately long and the tail short and slightly rounded, These Pigeons are terrestrial in their habits.

THE INDIAN EMERALD DOVE OR BRONZE-WINGED DOVE

The Indian Emerald Dove or Bronze-winged Dove (*Chalcophaps indica indica*) is a beautiful brownish pink

Dove, with metallic emerald bronze-green upper plumage (including the wings) and prominent white patches on the forehead. It is a bird of the forest, occurring singly or in pairs, and is found throughout the Western Ghats including the Nilgiris and neighbouring hills and in North India it occurs in the lower Himalayas from Dehra Dun to Eastern Assam. It frequents bamboo jungle and other types of forest, especially on the hills, and is often found in jungle clearings and among bushes of castor plants growing in forest clearings. It feeds mostly on seeds and berries on the ground, but it can also run fast on the ground and catch termites Its flight is swift, powerful and direct, and its call is a soft, prolonged, plaintive note resembling the syllable "*coo*". Two specimens are exhibited of which one is from the Nilgiris.

Subfamily COLUMBINAE

This Subfamily includes the typical Pigeons and Doves, such as the Rock Pigeons, Wood Pigeons, Ring Doves, Spotted Doves and Turtle Doves. Rock Pigeons generally have a greyish or bluish grey plumage with a metallic lustre around the neck. The wings are fairly long and pointed. Wood Pigeons possess a dark plumage, with a metallic gloss. They are arboreal, feeding mainly on fruit. The Turtle Doves are rather small birds with dull brown or grey plumage and with small heads, slender necks and weak beaks. The wings are long and pointed and the feet are adapted for walking.

Specimens of almost all the common South Indian species of this Subfamily are exhibited.

THE INDIAN BLUE ROCK PIGEON

The Indian Blue Rock Pigeon (*Columba livia intermedia*) is the commonest and most familiar species of Pigeon occurring throughout India. It is a slaty grey bird with a glistening, metallic purplish green sheen around the neck, and is the ancestral wild stock from which the various domestic breeds of Pigeons have been derived. In its wild state. it inhabits open country, especially rocky

cliffs and hills, but it is often found in large numbers frequenting towns and villages in a semi-domesticated condition, living in constant association with man. It is generally seen inhabiting old and ruined buildings, mosques, warehouses and railway station buildings. It usually associates in large flocks which cause a great deal of damage to crops. It feeds mainly on grains and seeds and its flesh is much esteemed as food. Wild birds inhabit cliffs, rocky caverns and crevices in old and ruined forts. In South India they ascend the hills up to an altitude of 4,000 feet.

THE NILGIRI WOOD PIGEON

The Nilgiri Wood Pigeon (*Columba elphinstonii*) is an allied species, confined to the hilly regions of South West India from Kanara to Cape Comorin and is commonly met with as a permanent resident in the dense forests on the slopes of the Nilgiris where it frequents the sholas. It is generally found singly, or in pairs or in small parties of five or six individuals, feeding on fruits and buds and occasionally also on snails. They move about locally a great deal in search of ripening fruits and on the Nilgiris, they feed largely on the crop of red berries. Its call is a soft, low "*coo*".

THE RUFOUS TURTLE DOVE

The Rufous Turtle Dove (*Streptopelia orientalis orientalis*) is a widely distributed species occurring in Sikkim, Tibet and the Himalayas, north of Assam, but in winter it spreads over the greater part of Peninsular India. The head, neck and back are brownish, tinged with vinous, the sides of the wings are blackish and the lower plumage is also vinous. It breeds usually in thick forest, but at other times it is mostly seen in open, cultivated areas, scrub jungle and thinly wooded country. It is very active on the ground, running and walking swiftly on the ground and feeds mainly on fallen grain and seeds. A single specimen from Chingleput is exhibited.

THE NORTHERN INDIAN RUFOUS TURTLE DOVE

The Northern Indian Rufous Turtle Dove (*Streptopelia orientalis meena*) is closely allied to the preceding form, but is much paler. The under parts including the breast and abdomen are white. It is a widely distributed species occurring in Western Central Asia, Persia and on the Himalayas eastwards as far as Nepal and Sikkim. It breeds during summer at fairly high elevations in the Himalayas, up to altitudes of 7,000 to 8,000 feet, but in winter, it is found practically throughout Western and South India. Its habits are very similar to those of the preceding race. These Doves are sometimes found in large numbers especially in paddy fields and are highly esteemed as excellent edible birds.

THE INDIAN SPOTTED DOVE

The Indian Spotted Dove (*Streptopelia chinensis suratensis*) is one of the most familiar and widely distributed of all our Indian Doves and is found throughout India and Ceylon, excepting the very dry north western parts of India. It is readily recognized by its pinkish brown and grey upper plumage, spotted with white and the characteristic black and white chessboard-like pattern on the hind portion of the neck. It frequents open, well wooded country and cultivated areas wherever water is easily accessible and has the habit of drinking water frequently. Its flight is strong, swift and direct. It is usually found in pairs or small parties, searching for grain and seeds and gleaning in suitable stubble fields. It easily becomes quite tame and often frequents roads and village paths and even enters gardens and verandahs of houses. Its call consists of a soft, trisyllabic note. Several specimens and an egg of this species are exhibited.

THE INDIAN LITTLE BROWN DOVE

The Indian Little Brown Dove (*Streptopelia senegalensis cambayensis*) is a small, slenderly built Dove with the upper plumage grey and earthy brown and the lower parts coloured pinkish brown and white. It is found in pairs or small flocks practically throughout India in the drier

parts, and usually frequents dry, stony scrub land overgrown with cacti, especially in the vicinity of villages and cultivated fields. It is often found side by side with individuals of the preceding species and becomes easily tame, entering gardens and bungalows. It feeds mostly on the ground, gleaning on seeds, grain, fallen buds and fruits. Its call consists of a soft, sweet, long-drawn out "*coo*" and the male performs a peculiar courtship display on the ground during the breeding season. A male specimen and an egg of this species are exhibited.

THE INDIAN RING DOVE

The Indian Ring Dove (*Streptopelia decaocto decaocto*) is one of the commonest species of resident Doves found in the Indian plains and is readily distinguished by its pale, vinous brown and greyish plumage, with a conspicuous narrow black collar-like ring on the hind part of the neck. It frequents open, cultivated country, especially the drier and more sandy areas, and as a rule avoids heavy forest. It occurs practically throughout India in the drier parts and generally haunts the neighbourhood of villages and human habitations wherever large bushes, hedges and trees abound, and enters gardens and groves freely. They feed almost entirely on the ground on seeds, grain and berries, but also on trees when ripening fruit is available. Their flight is strong and swift and their call is a familiar, deep, trisyllabic sound repeated several times. A male, a female and an egg of this species are exhibited.

THE INDIAN RED TURTLE DOVE

The Indian Red Turtle Dove (*Streptopelia tranquebarica tranquebarica*) is much less common than any of the preceding species of Doves. It occurs throughout India, but its distribution is somewhat erratic, being locally migratory in certain regions. It is generally seen singly or in pairs or occasionally in large, loose flocks, gleaning grain and seeds on the ground in stubble fields and cultivated areas. It frequents open, cultivated country, but is much less tame and confiding than the preceding species and is therefore seldom found near human settlements.

Its flight is very swift and its call consists of a very distinctive, harsh, rolling note repeated several times. The male is bright pinkish brick-red in colour while the female is pale brownish grey. Two male specimens from Madras are exhibited.

SUBORDER PTEROCLETES

This Suborder includes the Sandgrouses which are closely related to the Pigeons, but they also show affinities to the Fowls and other Game birds (Galliformes). They somewhat resemble the Partridges in general appearance, but have short legs and long wings and are capable of very powerful and rapid flight. The toes are adapted for walking. They generally frequent deserts or dry, open country and live almost entirely on the ground, never perching on trees. Although several species occur in India, only two species are common in South India, namely, the Painted Sandgrouse and the Common Indian Sandgrouse, both of which are exhibited.

THE CLOSE-BARRED, OR PAINTED SANDGROUSE

The Close-barred, or Painted Sandgrouse (*Pterocles indicus indicus*) is a resident species generally found in dry, rocky areas interspersed with some bushes and scrub jungle. It has a prettily ornamented plumage, the crown being spotted with black and the whole of the upper plumage being chestnut-buff, barred with black. They gather in small flocks of about four or five to a dozen, or occasionally more. Their flight is swift and generally not far above the ground. They feed mostly on seeds, berries, grain and shoots of plants, but they also occasionally eat termites and ants. Their eggs are the most beautifully coloured among the Sandgrouse eggs. A male and a female specimen from Arkonam near Madras, together with two other specimens and an egg are exhibited.

THE COMMON INDIAN SANDGROUSE

The Common Indian Sandgrouse (*Pterocles exustus erlangeri*) is a widely distributed species, occurring practically throughout India wherever the rainfall is not too

heavy. It is a yellowish sandy brown bird with a narrow black band across the breast and a brownish black abdomen. It frequents open, barren plains and semi-desert country, but unlike the preceding species, it does not occur on rocky hills nor on marshy or humid ground. They are essentially ground birds and their colouration harmonizes so perfectly well with their sandy surroundings that it is difficult to locate them even at short range. They are highly gregarious and generally collect in flocks of about a dozen birds, but much larger flocks may be met with. They drink in the mornings and evenings at the same tank or *jheel*, to which they resort flock after flock regularly at the accustomed hour. Their food consists of seeds, gain and shoots. Their flight is powerful and they utter a deep, penetrating, double-note constantly as they fly. A male and a female specimens are exhibited.

ORDER GRALLAE *

This Order includes the Rails, Crakes, Coots, Jacanas, Water hens, Cranes and Bustards. The Indian members of this Order are classified into five Suborders, as follows:

Suborder Fulicariae (Rails, Crakes, Water hens and (Coots).
„ Jacanae (Jacanas).
„ Rostratulae (Painted Snipes).
„ Grues (Cranes).
„ Otides (Bustards and Floricans).

* According to the most recent system of classification of birds this Order has been re-designated as "Order Gruiformes" and includes our families, namely, Turnicidae (Button Quails and Bustard Quails), fGruidae (Cranes), Rallidae (Rails, Coots, etc.), and Otididae (Bustards), but excludes the Jacanas and the Painted Snipes which are included in separate families, the Jacanidae and the Rostratulidae respectively, under the Order Charadriiformes.

However,for the sake of convenience and consistency, the older and more familiar system of classification and sequence followed in the Fauna of British India Volume by Stuart Banker has been adopted in the arrangement of the exhibits in respect of th^se groups in the Gallery, and the same system and sequence has therefore had to be necessarily followed in the present Guide book in order to make it more practicable and consistent with the treatment of these groups in the Fauna of British India and in order to facilitate easy reference when actually it is being used for studying the exhibits in the Gallery.

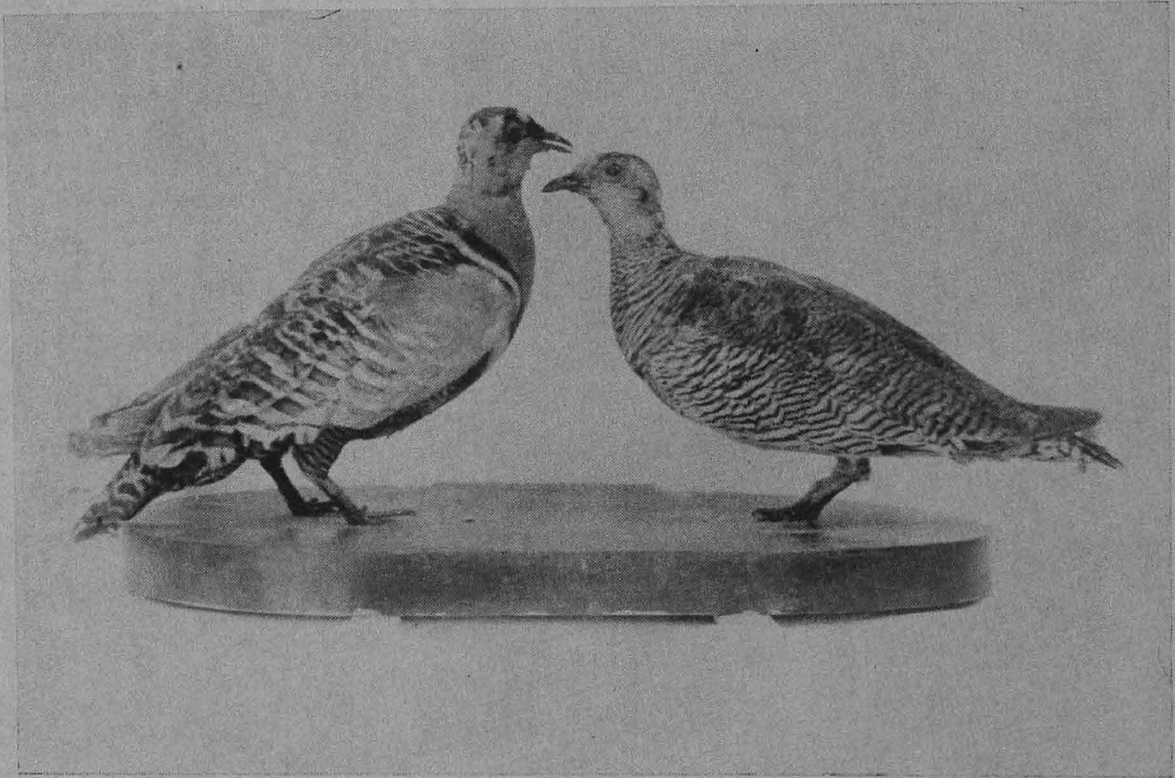


Fig. 51. *Pterocles indicus indicus*:
The Close-barred, or Painted Sandgrouse.

Fig. 52. Amaurornis phoenicurus phoenicurus :
The White-Breasted Water Hen.

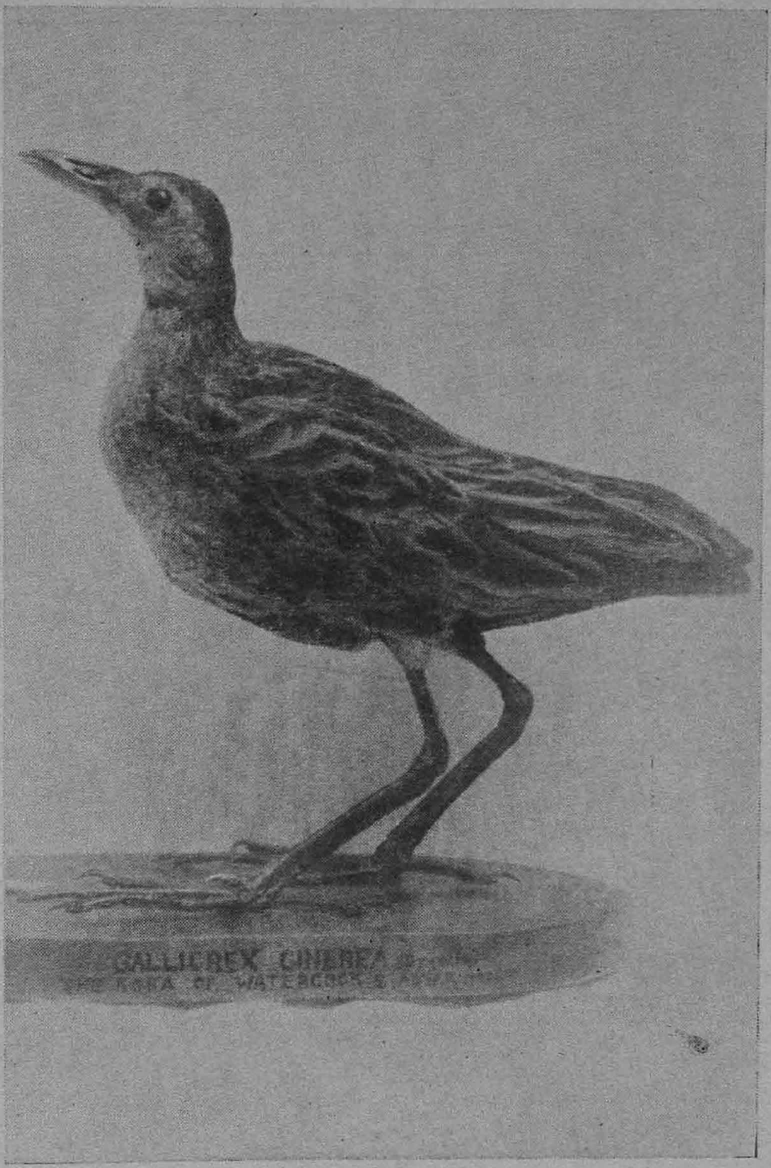


Fig. 53. Gallicrex cinerea cinerea :
The Kora or Water Cock.

Fig. 54. Hydrophasianus chirurgus:
The Pheasant-Tailed Jacana.

In this Order (Grallae) the hind toe, when present, is slightly raised, except in the Jacanas and Painted Snipes. The legs are generally long and mostly bare. This Order (as constituted in the older classification followed here) is a rather heterogeneous group comprising birds of varied appearance and habits. Many of them are marsh birds, skulking among reeds and on thick, grassy swamps. The toes in many species are long and narrow and adapted for walking on floating vegetation. Cranes are birds of large size with long necks and legs frequenting mostly sand banks and marshes, while bustards are heavy ground birds inhabiting drier regions, especially open waste land.

SUBORDER FULICARIAE

This Suborder includes the Rails, Crakes, Water hens and Coots. All of them are typically marsh birds grouped under the family Rallidae.

Family RALLIDAE

Rails and Water hens, etc., are birds of rather slender build and have fairly long legs. Their toes are long and narrow, but their wings are short and their flight awkward. They are mainly vegetarian, feeding on seeds, grain and water plants, but they also eat insects, larvae, water snails and freshwater crabs.

THE SPOTTED CRAKE

The Spotted Crake (*Porzana porzana*) is a winter visitor to Northern India, arriving early in October and leaving again in March or April. It is usually found in damp, marshy country and also in paddy fields and well irrigated gardens. Like other species of Crakes, it is a habitual skulker, so that it is seldom seen in the open. It runs and swims well, but its flight is not swift nor powerful. It feeds on insects, small molluscs and worms, as well as on seeds and shoots of water and marsh plants.

THE EASTERN BAILLON'S CRAKE

The Eastern Baillon's Crake (*Porzana pusilla pusilla*) is found practically throughout India in suitable localities,

but mostly as migratory birds in winter when they wander down from the Himalayas in large numbers over the greater part of India. It is found in damp swamps and inundated paddy fields and has the same skulking habits as those of the preceding species. It is consequently often overlooked in its native haunts, but may sometimes be seen running over water lilies and other floating, aquatic vegetation. It feeds chiefly on insects, but it also eats worms, grubs, seeds and vegetable shoots, as well as small snails.

THE BANDED CRAKE

The Banded Crake (*Rallina eurizonoides amauroptera*) occurs sporadically in small numbers throughout India in the better wooded and wetter regions, but in South India it seems to be rather rare, only a few specimens having been recorded and these are from the extreme south of the Peninsula. It is an extremely shy bird, running to cover at the least suspicion and sometimes takes shelter in the dense foliage of trees when flushed. It is said to be less aquatic than most other Crakes and Rails, and haunts dense jungles on the sea coast, ascending the hills up to about 2,000 feet. Its call may be heard in the mornings and evenings. It feeds mainly on insects. Two specimens from Madras are exhibited.

THE WHITE-BREASTED WATER HEN

The White-breasted Water hen (*Amaurornis phoenicurus phoenicurus*) is a common, permanent resident species of Water hen found on the plains throughout India from the foot of the Himalayas up to South Travancore in the far South. It is a slaty grey bird with prominent white breast, commonly occurring singly or in pairs in marshy ground among reeds and grass. It generally inhabits swampy fields, overgrown with reeds and bamboo bushes on the banks of streams and ponds. It is, as a rule, a silent and shy bird stalking quietly through the reeds and water weeds jerking up its stumpy tail every now and then as it walks, but it is extremely noisy during the rainy season when it breeds. It feeds on young paddy shoots, seeds, grain, insects, worms and freshwater snails. During the breeding season, the males become very active and may be heard calling in their characteristic manner.

Its nest consists of a shallow cup of sticks, etc., placed among the bushes and reeds near water. A pair of these birds, with their nest placed in a bed of reeds, are exhibited.

THE INDIAN MOORHEN OR WATER HEN

The Indian Moorhen or Water hen (*Gallinula chloropus indica*) is a common, slaty grey and brown bird found mostly in marshes in all the better watered regions throughout India. It generally inhabits small ponds and lakes covered with reeds and aquatic vegetation. It is essentially a water bird and its habits are very similar to those of the White-breasted Water hen, but it spends practically all its time swimming about in the water among the reeds and water weeds. It can also run swiftly on the ground as well as on the leaves of the aquatic plants. Its flight is laboured and usually it flies very low over the surface of the water. It feeds largely on vegetable matter, but it also eats snails, insects and insect larvae. Its call is a loud, sharp note, uttered in the mornings and evenings. Two specimens and an egg are exhibited.

THE KORA OR WATER COCK

The Kora or Water Cock (*Gallicrex cinerea cinerea*) is a rather long-legged and long-toed Rail-like bird found practically throughout India and Ceylon in the better watered parts of the country where swamps and grassy tanks abound. It is readily distinguished by the presence of a large, fleshy, horn-like appendage on the top of its head (i.e., on its crown). The adult male in its breeding plumage is almost uniformly slaty black, with the head, neck and lower parts more or less tinged with grey, but at other times the males and females are more or less similar, the upper plumage being dark brown. It is shy and retiring in its disposition, wherever it is hunted for food, but in places far removed from human interference, it appears to be quite bold and tame. It feeds mainly in the mornings and evenings, its food consisting of rice, grain, shoots of aquatic plants, seeds, freshwater molluscs and insects. They are very noisy birds, especially during the breeding season and are noted for their fighting qualities. They are

much esteemed for the table and are regularly hunted. Their call is a loud, deep, booming note. Three specimens and two eggs of this species are exhibited.

THE INDIAN PURPLE MOORHEN

The Indian Purple Moorhen (*Porphyrio porphyrio poliacephalus*) is a common permanent resident bird found throughout India on the plains, frequenting swamps, lakes and large tanks overgrown with reeds and on the margins of ponds and streams. It is easily recognized by its handsome, purplish blue plumage, long, red legs and short, heavy, red beak. It clambers about among the reeds and aquatic vegetation, searching for its food and running to cover at the least sign of approaching danger. It feeds on shoots of water plants, insects and small snails. It is destructive to young paddy shoots in many localities. It is a noisy bird, especially during the breeding season and its flesh is highly esteemed for the table. Its call consists of a variety of loud, harsh, cackling notes. Two specimens and an egg of this species are exhibited.

THE COOT

The Coot (*Fulica atra atra*) is a somewhat stoutly built, slaty black, water bird, with scarcely any tail feathers and readily recognized by its ivory white, pointed bill and a characteristic frontal shield on the forehead. The toes are peculiarly lobed. It is found throughout India on large, open lakes rather than on the smaller tanks and ponds. It is usually seen spending most of its time swimming in open stretches of water and not in the reed beds except when breeding. During the winter their numbers are greatly increased by birds which come migrating from the north. They are, as a rule, reluctant to fly, but once they are on the wing, they are capable of long, sustained flight. Their food consists mainly of grass and paddy shoots, aquatic insects, snails and water weeds. Their call resembles the sound of a trumpet. A single specimen and two eggs of this species are exhibited.

SUBORDER JACANAE

This group includes the Jacanas. They are tropical marsh birds readily distinguished by their very long, slender, unwebbed toes with long, nearly straight claws. The long toes enable them to walk with ease on lotus leaves and other floating vegetation by distributing the weight over a large area. It is believed that these birds are more nearly related to the Plovers. This Suborder includes the single family Jacanidae.

Family JACANIDAE

The characters are the same as those described for the Suborder Jacanae above. Only two species, the Bronze-winged Jacana and the Pheasant-tailed Jacana occur in India. Specimens of both these species are exhibited.

THE BRONZE-WINGED JACANA

The Bronze-winged Jacana (*Metopidius indicus*) is a marsh bird, somewhat resembling a Moorhen, and easily recognized by its metallic green, bronze-coloured back and wings and a board white stripe extending from behind the eye to the nape. The legs are long and slender and the toes enormously elongated. It is found throughout India, inhabiting tanks and ponds abounding in floating water-lilies and other aquatic plants. Their immensely elongated toes are well adapted for walking over the broad, floating leaves. They are active in the early mornings and late evenings, and are good divers and swimmers, but their flight is poor. They feed on seers, roots, shoots, etc., as well as on insects and snails. They become easily tame and confiding. Their call consists of a short, harsh, grunting sound. Two specimens and an egg are exhibited.

THE PHEASANT-TAILED JACANA

The Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) is a handsome bird with a characteristic breeding plumage of white and chocolate-brown and a long, pointed, sickle-shaped tail like that of a pheasant, and enormously elongated toes. It occurs throughout India and is

common on lotus ponds, its long toes being well adapted for stalking with ease over the lotus leaves and other floating vegetation. In their general habits, they closely resemble the Bronze-winged Jacana, except that they keep more to the open. They feed on seeds, shoots, etc., and also on insects and snails Their call consists of a peculiar, mewing, nasal note. Two specimens from Madras and an egg of this species are exhibited.

SUBORDER ROSTRATULAE

This Suborder has been created for the reception of the single family and genus comprising the Painted Snipe, regarding the exact systematic position of which there has been considerable uncertainty. According to the current system it is believed to be more nearly related to the Gulls, Terns and Plovers and is therefore included in the Order Charadriiformes, but it has affinities with the Rails and is probably a connecting link between the two Orders.

This Suborder includes the single small family Rostratulidae, which comprises only two species of which only one, the Painted Snipe—a widely distributed species—occurs in India. The bill is long, slender and slightly curved downwards at the tip, which is hard and not soft and flexible as in the true Snipes. The plumage is more brightly coloured than in the ordinary Snipes, and the females are more colourful than the males and more masculine in behaviour.

Family ROSTRATULIDAE

The characters of the family are the same as those described above for the Suborder. Specimens of the sole Indian species, the Painted Snipe, are exhibited.

THE PAINTED SNIPE

The Painted Snipe (*Rostratula benghalensis benghalensis*) is a permanent resident bird found throughout India, inhabiting reedy swamps and marshes, either singly or in small flocks. It bears a beautiful pattern of markings, the female being more brightly coloured and showy

and particularly handsome. Although it is a resident bird, it moves about locally a great deal, depending on the availability of food and other conditions. It can dive and swim well, but its flight is weaker than that of the true Snipes. They feed on leaves, grain and shoots as well as on insects and worms. The female is polyandrous and plays a dominant role in courtship, but the males incubate the eggs and rear the young. Their call consists of a deep, hollow, whistling note. Their flesh is not much esteemed for the table. A pair of specimens and an egg of this species are exhibited.

SUBORDER GRUES

This group includes the Cranes—all of which belong to the single family Gruidae

Family GRUIDAE

Cranes are birds of large size, with long legs and long necks and with a fairly strong, long, and rather compressed beak almost equal to or even slightly longer than the head. Cranes generally inhabit the vicinity of lagoons, tanks and cultivated areas such as corn fields and paddy fields. They are cosmopolitan in distribution, but only two species of Cranes are common in India, namely, the Indian Sarus Crane and the Demoiselle Crane, and specimens of both these are exhibited.

THE INDIAN SARUS CRANE

The Inidan Sarus Crane (*Grus antigone antigone*) is the largest of Indian Cranes, easily reaching a height of four to five feet when it stands erect. It is readily recognized by its greyish plumage and bare, red legs. This species occurs all over Northern and Central India. They inhabit open, well watered marshes and plains and almost always keep in pairs, occasionally accompanied by one or two young ones. They pair for life and are noted for the love and devotion which they bestow upon each other. They take off from the ground with great effort, but when once launched, their flight is swift and powerful. They feed mostly during the day in fields and open plains, and

in the forenoon and again in the evening the come down to the water where they mostly spend the night. Some individuals, however, live entirely in swamps and around large lakes and seldom leave their neighbourhood. Their food consists of grain, seeds and shoots as well as insects and small reptiles. Their call is a loud, sonorous, trumpeting sound, and during the breeding season the pair indulge in dances and other courtship displays. A single specimen and an egg of this species are exhibited.

THE DEMOISELLE CRANE

The Demoiselle Crane (*Anthropoides virgo*) is a winter visitor commonly found throughout Northern India, as far south as Mysore. It is a handsome little greyish Crane with a black head and neck and prominent white ear tufts behind the eyes. They arrive in large flocks in about October and return by the end of March. They inhabit open, cultivated country and feed mostly on the tender shoots of wheat, gram and other crops in large flocks. During the heat of the day they retire to rest on the sand banks of rivers. As a game bird, it is a favourite with shikaris, and its flesh is highly esteemed for the table. They fly in broad, V-shaped formations with their necks and legs stretched out. Their call consists of a loud, musical, trumpeting note. A pair of these birds are exhibited in a diorama depicting their natural haunts.

SUBORDER OTIDES

This group includes the Bustards and Floricans. They are related to the Cranes on the one hand and to the Plovers on the other, through intermediate forms such as the Stone Plovers. Bustards are large, heavy, ground birds, while Floricans are much smaller and more slenderly built. The head is flat and the beak somewhat blunt and depressed. Males of some species have an inflatable gular (throat) pouch, opening under the tongue. Only two species, both included in the family Otididae, occur in South India, and both are exhibited.

Family OTIDIDAE

The characters of the family are more or less the same as those described above for the Suborder.

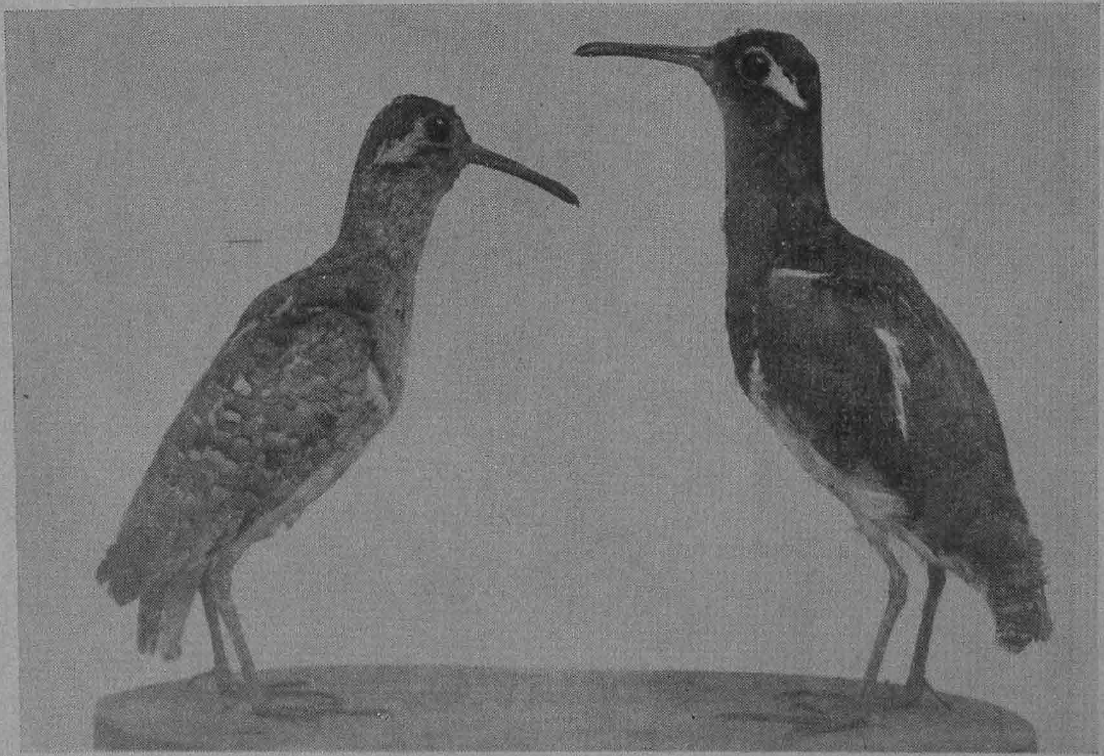


Fig. 55. Rostratula benghalensis benghalensis :
The Painted Snipe.

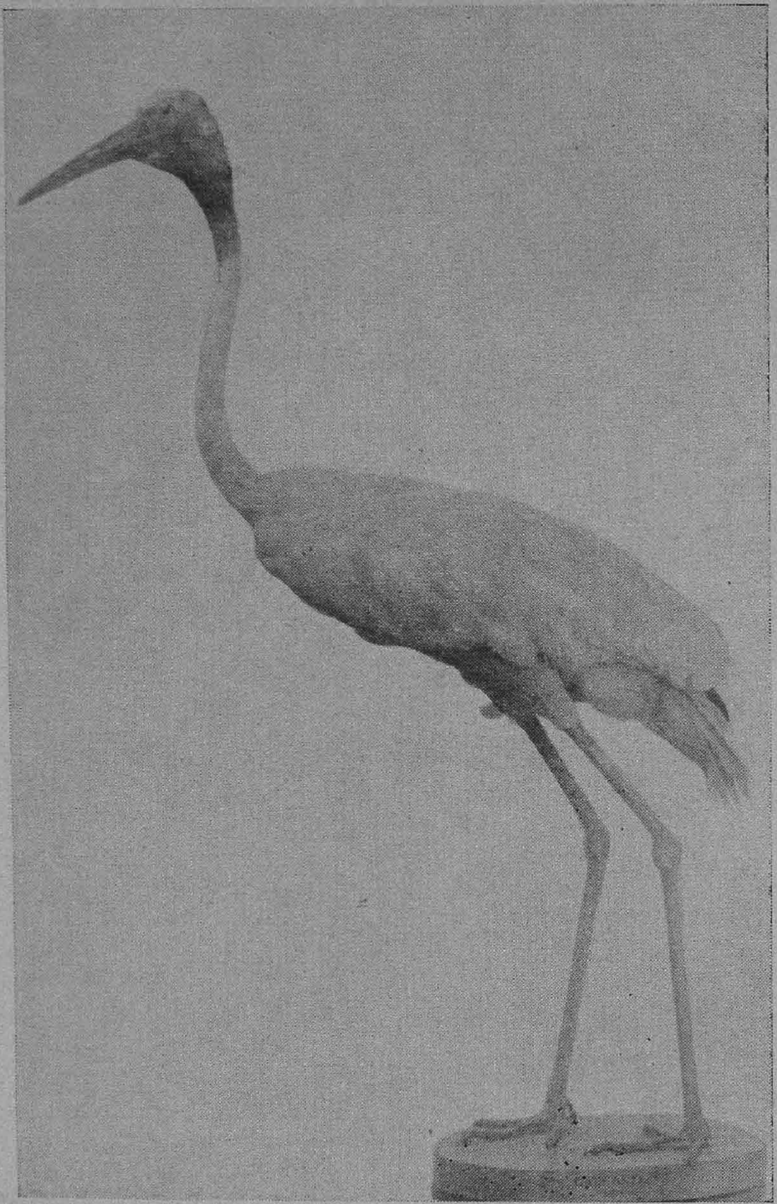


Fig. 56. Grus antigone antigone :
The Indian Sarus Crane.

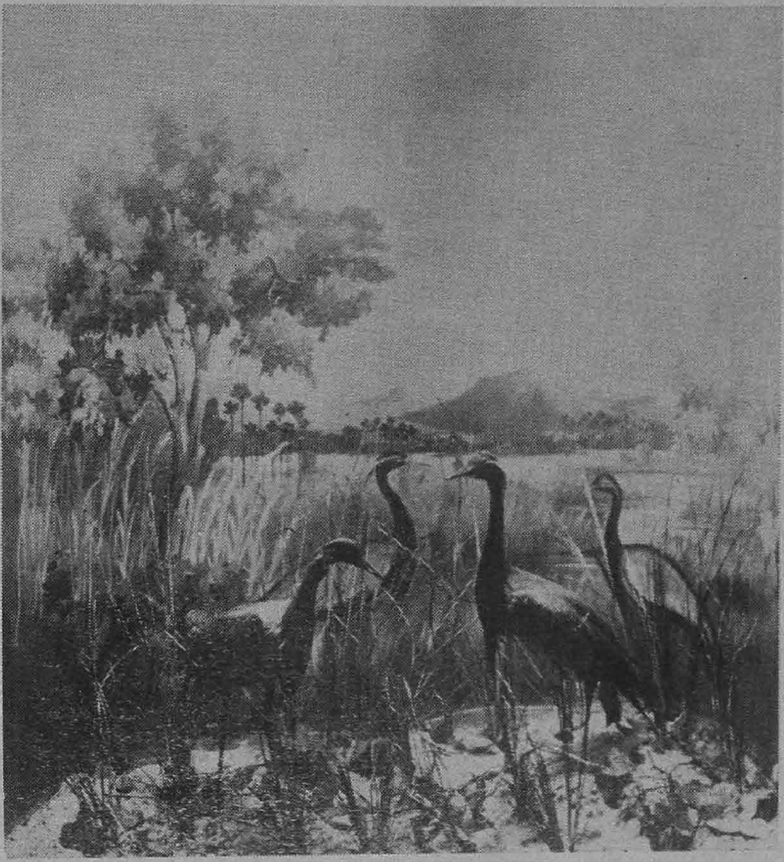


Fig. 57. Anthropoides virgo:
The Demoiselle Crane
(Diorama).

Fig. 58. Choriotis nigriceps : The Great Indian Bustard.

THE GREAT INDIAN BUSTARD

The Great Indian Bustard (*Choriotis nigriceps*) is a heavy ground bird found locally throughout India as far south as Mysore, but not in Bengal and Assam, inhabiting open, semi-desert plains and broken grassland with scattered bushes. It is generally met with singly or in pairs or in loose parties of three or four individuals, and is extremely shy and alert. It can run very swiftly, and although it takes off from the ground rather heavily, it can also fly very well, for long distances, when once it takes off. It feeds mainly on locusts, grasshoppers and beetles, but it also eats grain and tender shoots of various crops and sometimes also lizards and small snakes. It utters a short, barking sound when alarmed. This species is now nearly extinct and is rigidly protected by law. A single egg is laid in a shallow depression of the ground, without any nest.

THE LESSER FLORICAN OR LIKH

The Lesser Florican or Likh (*Sypheotides indica*) is much smaller than the Bustard, being about the size of a domestic hen, but with longer neck and legs, and is found as a resident or local migrant over the greater part of the Indian plains (except Assam). It inhabits regions overgrown with tall grass and fields of cotton, millet and other crops. It is generally found singly, feeding on grasshoppers and other insects as well as seeds and tender shoots of grass. The cocks of this species perform a peculiar courtship display during the breeding season, constantly jumping or springing up, above the tall grass or crops, uttering a short croak and coming down perpendicularly to the ground each time with the tail spread out. This bird is highly esteemed for the table and is much hunted during the breeding season. As in the case of the Great Indian Bustard, a single egg is laid in the bare ground in a depression, without any nest.

ORDER CHARADRIIFORMES

This is a large and rather heterogeneous group of mostly marsh-dwelling and semi aquatic, birds such as the

Plovers, Lapwings, Snipes, Sandpipers, Gulls and Terns. Most species are adapted for a life on marshy ground. The legs and feet are adapted for running and wading. The toes are not, as a rule, conspicuously webbed, but most species can swim well. The beak is generally slender, but shows great diversity in shape. The wings are usually long and the wing quills are well developed. Many of the species are migratory, and their flight is strong and powerful. The eggs are almost always laid on the bare ground with scarcely any attempt at nest-building.

The South Indian species of this Order belong to the following eight families. namely:—

(1) Burhinidae (Stone Plovers);

(2) Glareolidae (Coursers and Swallow Plowers);

(3) Dromadidae (Crab Plovers);

(4) Laridae (Gulls);

(5) Sternidae (Terns);

(6) Rhyncopidae (Skimmers);

(7) Charadriidae (Plovers and Lapwings); and

(8) Scolopacidae (Curlews, Whimbrels, Godwits, Sandpipers, Snipes, etc.

Representative specimens of all these eight families are exhibited in this Gallery.

Family BURHINIDAE

This family includes the Stone Plovers or Stone Curlews. They are rather larger than the ordinary Plovers and have heavier and stouter bills. The plumage is somewhat rough and stiff. The three front toes are short and stout and are united by an incipient web at the base; the hind toe is absent. The eyes are very large. These birds are more or less nocturnal in their habits.

Only two species of this family occur in South India and specimens of both these species are exhibited.

THE INDIAN STONE CURLEW

The Indian Stone Curlew (*Burhinus oedicnemus indicus*) is a somewhat large, Plover-like ground bird with a characteristic brown, streaked plumage, long, bare, yellow legs and large, yellow, goggle-like eyes. It is found practiaclly throughout India in the plains and in the Himalayas up to an altitude of about 3,000 feet, and commonly frequents dry scrub jungle, ploughed fields, stony ground, bamboo bushes and dry beds of streams and rivers strewn with pebbles and shingle. It is largely crepescular and nocturnal in its habits, being active only late in the evenings and nights, but sluggish during the day. When disturbed or alarmed, it often squats flat on the ground with its neck extended, and in this position it harmonizes so well with its surroundings that it can seldom be detected. It feeds on insects, worms, small reptiles, etc., and its flesh is quite edible. Its call consists of a series of sharp whistle-like notes uttered mostly at dusk or at night. A single male specimen from Singaperumal Koil, Chingleput District, is exhibited.

THE GREAT STONE PLOVER

The Great Stone Plover (*Esacus magnirostris recurvirostris*) is a rather strange looking bird about the size of a small domestic hen, but more slenderly built and rather longer in the leg than the latter. The eyes are very large and yellow, and the beak powerful, long, heavy, slightly upcurved, pale yellow at the base and black for the rest of the length. The legs are pale yellowish green. It is found throughout India and inhabits mostly dry areas and wide, open country. It is usually found on dry sandy beds of rivers and streams and sometimes also frequents the sea shore. It is normally seen in pairs, but may also occur singly or in small parties. It is shy and wary and generally escapes notice as its colour blends with that of the surrounding sand and stones. It is crepescular and nocturnal in habits and feeds almost exclusively on insects, worms, snails, crabs and frogs, mostly in the mornings and evenings; it also swallows small stones and pebbles. Its flesh is highly esteemed for the table. It has a piping call, usually heard in the mornings and evenings. A single specimen from Madras is exhibited.

Family GLAREOLIDAE

This family includes the Coursers and Pratincoles or Swallow Plovers or Sand Plovers, and is confined to the Old World. It is a small family of Plover-like, small to medium-sized birds, inhabiting mainly open country. Their flight is strong, but none of them perch, nor do they normally swim. The beak is small and not grooved.

This family is divided into two well marked Subfamilies, namely, the Cursoriinae (Coursers) and the Glareolinae (Swallow Plovers) Specimens belonging to species of both groups are exhibited.

Subfamily CURSORIINAE

Coursers have long, slender legs with only three rather thick toes, the middle one being much longer than the other two. The beak is slender and slightly curved. Coursers are good runners and frequent dry, open country. Specimens of the Indian Courser, which is the common Indian species of this group, are exhibited.

THE INDIAN COURSER

The Indian Courser (*Cursorius coromandelicus*) is a sandy brown, Plover-like bird, with long, bare white legs and a dark, rufous-brown crown, with a characteristic black and white stripe running across and above the eyes. This bird is found throughout the drier portions of India and the Northern part of Ceylon. It occurs in isolated pairs or small parties of ten or twelve birds, frequenting bare, stony plains and waste land. It runs about swiftly, and, when alarmed, moves rapidly away in short spurts. If pressed, it flies low over the ground for a short distance and again starts running after alighting on the ground. It is, however, capable of swift flight at considerable heights. It feeds on insects such as beetles, crickets and grasshoppers and their larvae. Two specimens from Madras and an egg of this species are exhibited.

Subfamily GLAREOLINAE

This group includes the Pratincoles or Swallow Plovers and Sand Plovers. This is a small group of birds which

in their general appearance and flight resemble the Swallows very closely. They have comparatively short legs, with the hind toe well developed. The wings are very long and pointed, and the tail is more or less forked. The beak is short and curved with a wide gape.

Specimens of the only two common South Indian species, the Large Indian Pratincole and the Small Indian Pratincole, are exhibited.

THE LARGE INDIAN PRATINCOLE OR SWALLOW PLOVER

The Large Indian Pratincole or Swallow Plover (*Glareola pratincola maldivarum*) is a bird about the size of the Common Mynah, but with long wings which project well beyond the tail when folded. It is a winter visitor found locally throughout India and Ceylon and may often be seen hawking for insects over tanks, rivers and marshy fields. On the wing, its style of flight resembles closely that of a Swallow, especially while hawking for insects; hence the name "Swallow Plover" is quite appropriate for this bird. It generally occurs in scattered flocks and is crepescular in habits, spending the day resting on the ground or running about on the ground like a Plover. But in the early mornings and late evenings, the flocks fly swiftly chasing flying insects such as beetles, moths and termites on which they feed. The greyish yellow eggs, which are mottled and blotched, are laid in a shallow depression on the bare ground. Two specimens and an egg of this species are exhibited.

THE SMALL INDIAN PRATINCOLE OR SAND PLOVER

The Small Indian Pratincole or Sand Plover (*Glareola lactea*) is a handsome little drab grey bird found almost throughout India and Ceylon, occurring in scattered flocks along sandy beaches and along the banks of large rivers, on the wide stretches of sand and shingle. It is highly gregarious and often associates in large flocks, especially during winter. Its habits are more or less similar to those of the Large Indian Pratincole, but it is more partial to

bare sandy stretches of ground. It can run swiftly on the ground and at the same time its flight is quite swift, graceful and Swallow-like. It feeds mostly on small insects, molluscs and sand-hoppers (Amphipoda). Two specimens are exhibited.

Family DROMADIDAE

This family includes only a single genus and species, the Crab Plover (*Dromas ardeola*). It is a unique family of medium-sized shore birds with black and white plumage and a long, heavy black bill. In habits they resemble the Oyster-catchers.

THE CRAB PLOVER

The Crab Plover (*Dromas ardeola*) is a widely distributed species occurring locally along the coasts of India, Ceylon and the Laccadives. It is a large-headed bird, with a heavy, black bill, long blue legs and pied plumage, found chiefly on the sea shores and reefs, feeding on crabs and other marine animals which it captures in shallow waters between tide marks. It is a sociable bird and is often gregarious, associating in large flocks especially around the Persian Gulf, the Red Sea and the coastal Islands around India. It is crepescular in its habits and in its movements it resembles a Plover being able to fly well and run swiftly in short spurts In its nesting habits, however, it resembles the Petrels, laying a single white egg in a chamber at the end of a burrow in a sand bank. Two specimens are exhibited.

Family LARIDAE

This family includes the Gulls. They are essentially birds of the sea, although many species also occur on inland waters. They have fairly stoutly built bodies with long wings which project beyond the tail when closed. The feet are large, with the front toes fully webbed. They feed mostly on dead fish, floating garbage, etc. There are marked seasonal changes in the colour of the plumage in these birds during their growth.

Several species of Gulls occur in India, of which about five are found in South India. Of these, specimens of four of the more common species are exhibited.

THE GREAT BLACK-HEADED GULL

The Great Black-headed Gull (*Larus ichthyaetus*) is a fine, large-sized bird about the size of a large, domestic cock, but with much longer wings. It is a winter visitor to India, breeding in summer in South Russia and Central Asia. In the breeding plumage, the head and upper part of the neck are black, while in the winter plumage in which it is normally seen in India, there is no black cap, but only a few black streaks around the eye. Though usually it occurs singly, at times it congregates in large flocks on sea shores and tidal mud flats. Its flight is powerful, steady and majestic, and it may often be seen flying gracefully at a leisurely pace along the coast just above the line of the breakers. It can also swim well. It feeds mainly on fish, but it also eats other marine animals and the young and eggs of other shore birds. A single female specimen from Kistna District is exhibited.

THE BLACK-HEADED OR LAUGHING GULL

The Black-headed or Laughing Gull (*Larus ridibundus ridibundus*) is a somewhat small-sized Gull readily distinguished in its winter plumage by the dark spot behind the ear and the white edge to the front of the wing tips. It is widely distributed and breeds in Europe and Western Asia, while in winter it migrates to Africa and Southern Asia as far south as India. In summer plumage the head is sooty brown, while in winter plumage, the head is white. It is a winter visitor to India, arriving by August and again leaving by March. It is usually common on the sea coast and in and around harbours where it serves as a scavenger feeding on dead fish, crabs and garbage of all kinds from the surface of the water especially in the vicinity of ships. Sometimes they collect in large flocks and rest either on the sands or on the sea surface. Their flight is strong, but they cannot dive and hence seldom catch live fish. Two specimens in winter plumage are exhibited.

THE BROWN-HEADED GULL

The Brown-headed Gull (*Larus brunnicephalus*) is a medium-sized bird about the size of the common House Crow, but with much longer wings. It breeds in summer on the lakes from Ladak to Eastern Tibet where it nests in large colonies on the shores and islands of the great lakes at high elevations, but in winter it migrates down to India and Ceylon. In its summer plumage the head, chin, face and neck are dusky brown, but in the winter plumage the brown colour of the head disappears, the whole head, face, chin and throat being white, mixed with grey. This species may be easily distinguished from the other Indian species of Gulls by its broader, more rounded wings and slower and more leisurely flight. It can also walk with ease. It is found chiefly on the sea coast and around large rivers and marshes and like most Gulls, it is gregarious, being usually seen in large flocks. It feeds on fish, crabs, prawns, molluscs and any animal it may find floating on the sea surface. Its call consists of a variety of loud, harsh, screaming notes. Two specimens are exhibited, of which one is a female from Kistna District.

THE SOOTY GULL

The Sooty Gull (*Larus hemprichii*) is a much rarer species than the preceding one, and is also a winter visitor to India. In summer it breeds on the islands off the coast of Somaliland and the southern shores of the Red Sea. In its summer plumage the head is smoky brown, except for a short eyebrow which is white, and there is a black collar followed by a narrow white collar behind the nape; but in the winter plumage, the white and dark collars disappear and the head and front part of the neck are paler brown, streaked and mottled with white. The Sooty Gulls are fairly common on the sea coasts in India in winter as far south as Bombay. They feed on fish, Crustacea, worms, etc., and fly in the normal, easy style typical of the Gulls. They are said to become readily tame.

Family STERNIDAE

Terms are more slenderly built than the Gulls. Their wings are very long and narrow and acutely pointed, enabling them to fly swiftly and constantly with grace and

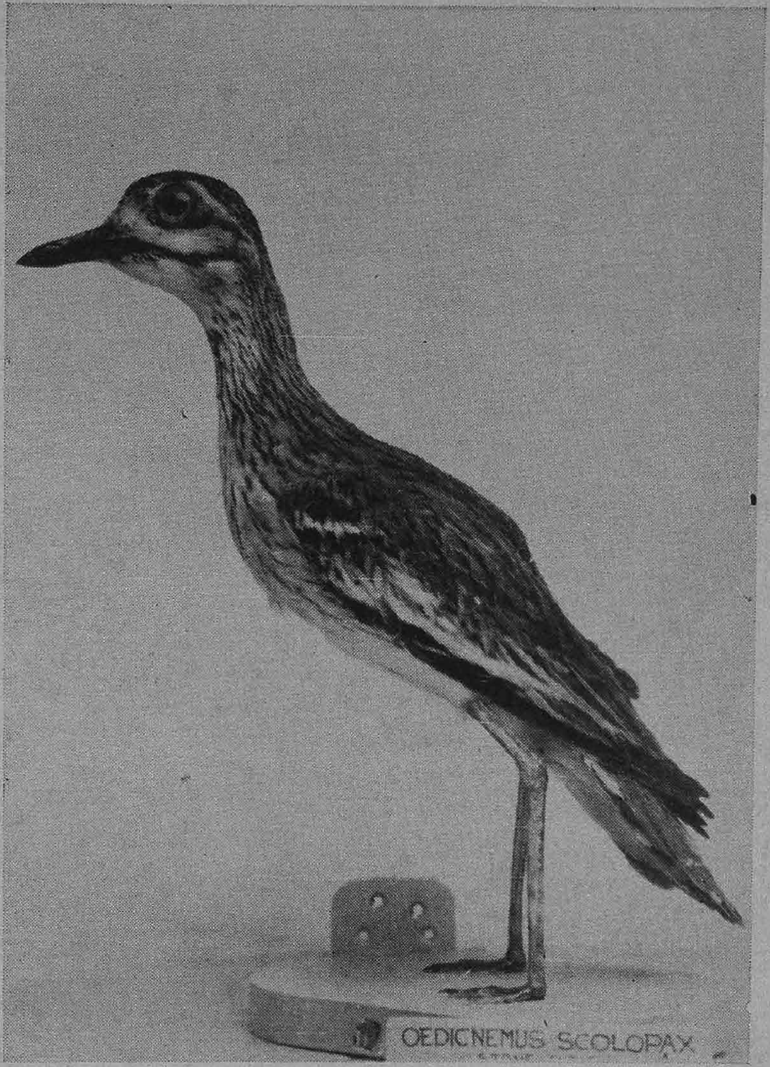


Fig. 59. Burhinus oedicnemus indicus: The Indian Stone Curlew.

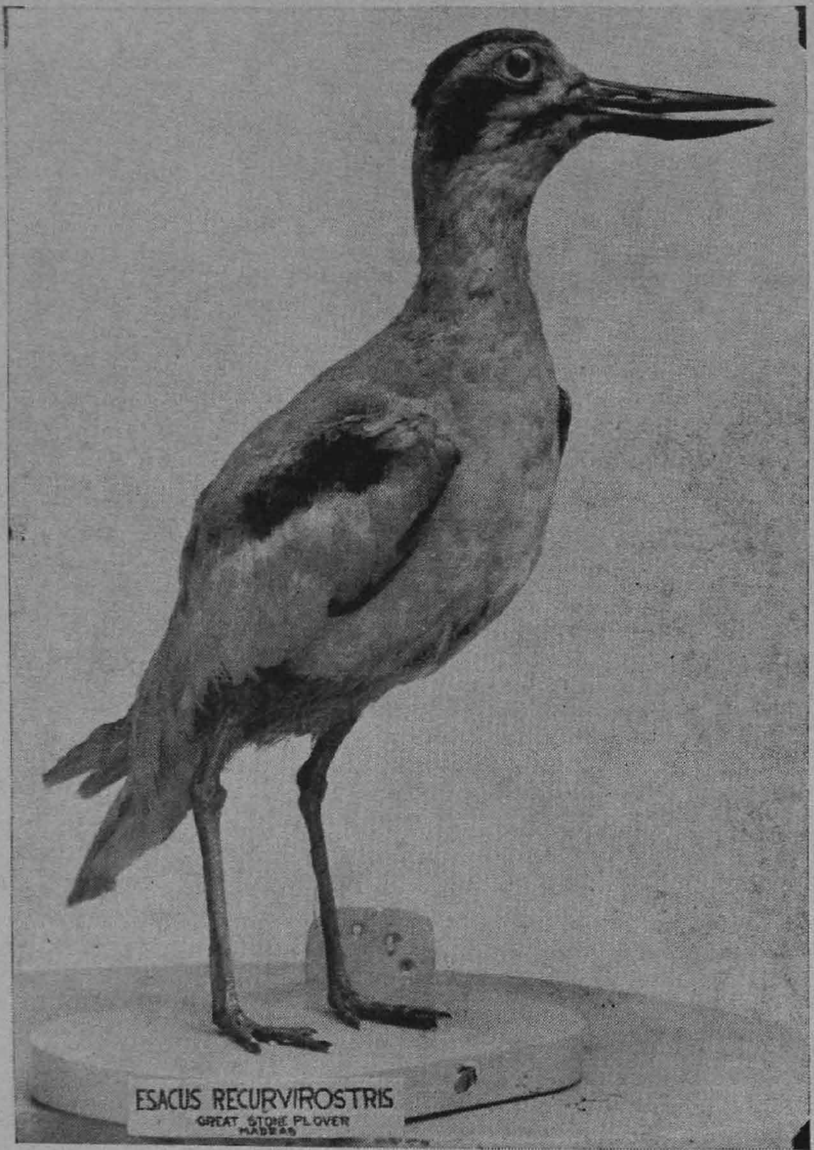


Fig. 60. Esacus magnirostris recurvirostris:
The Great Stone Plover

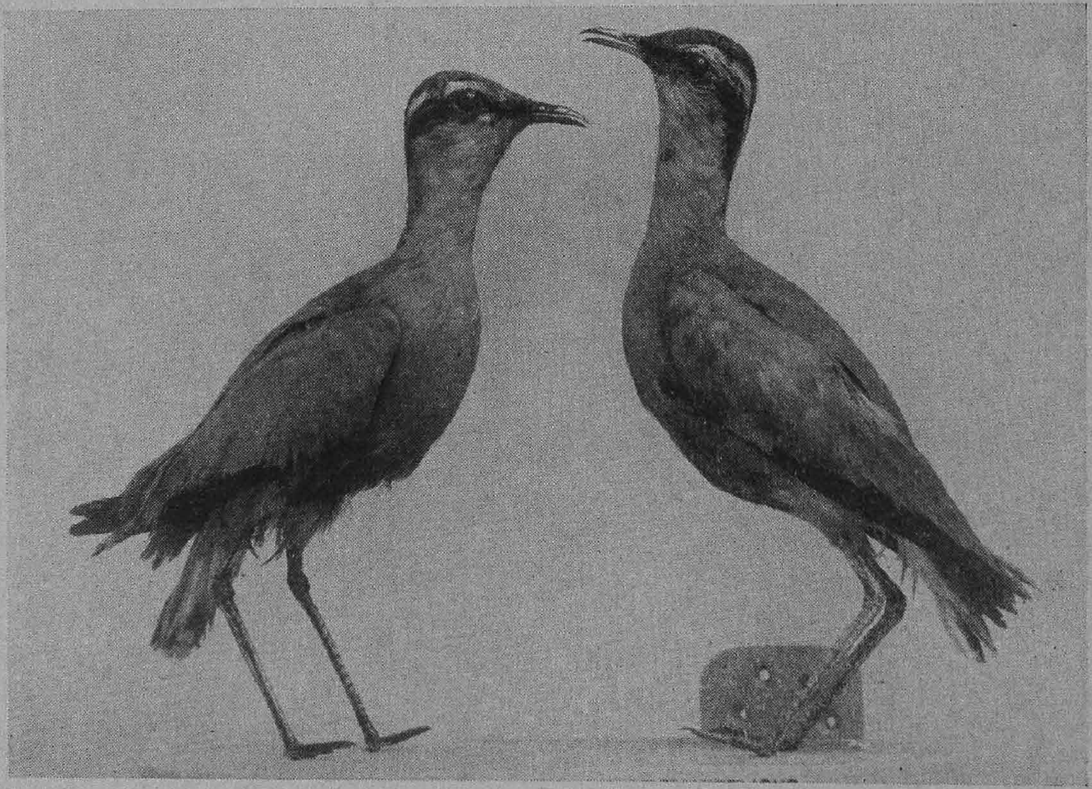


Fig. 61. Cursorius coromandelicus:
The Indian Courser.

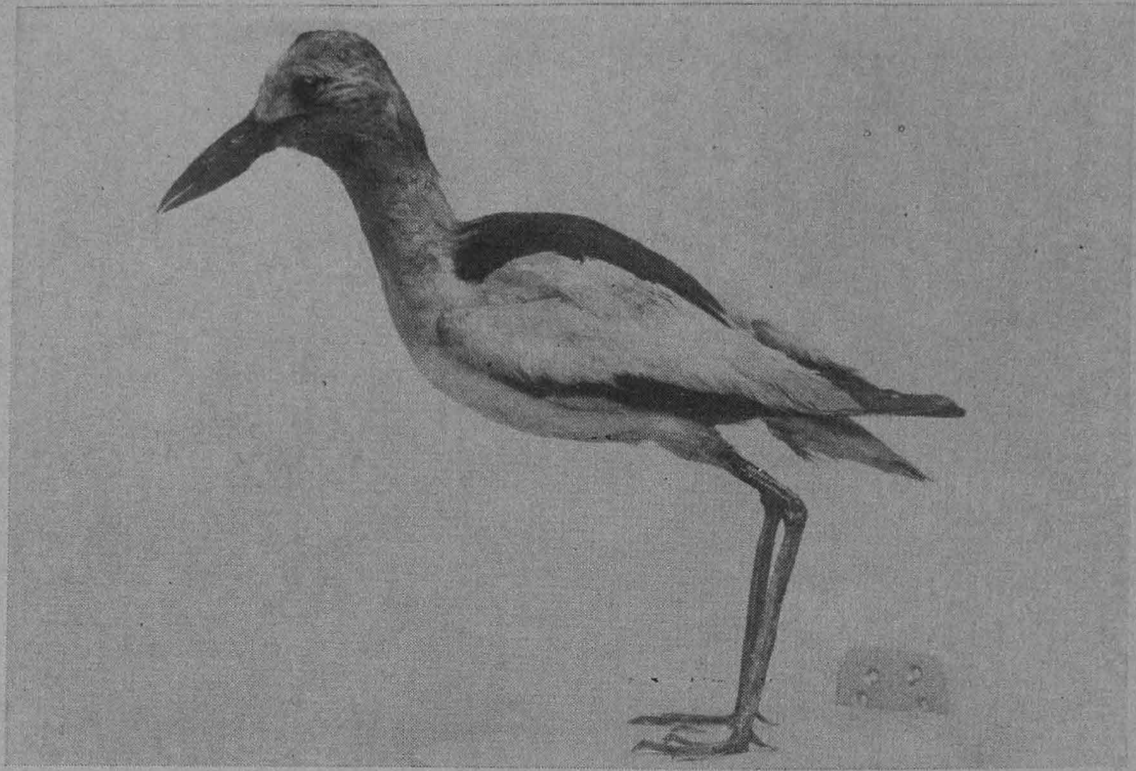


Fig. 62. Dromas ardeola:
The Crab Plover.

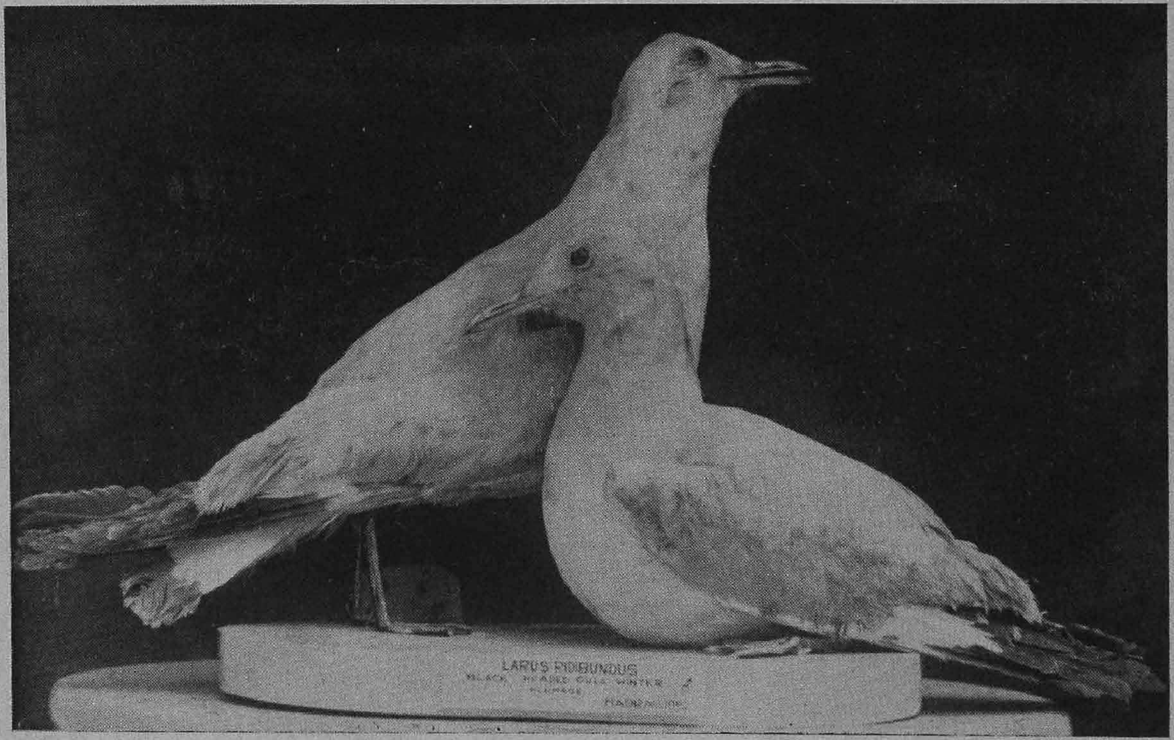


Fig. 63. Larus ridibundus ridibundus:
The Black-headed or Laughing Gull.

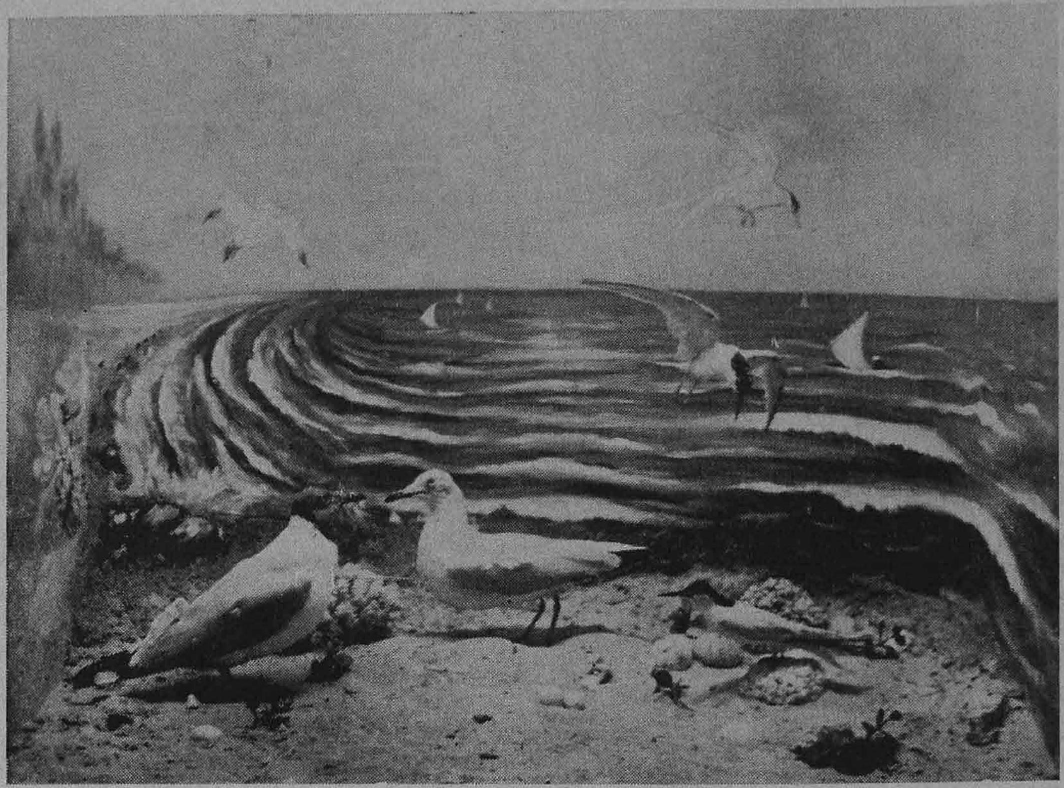


Fig. 64. Larus brunnicephalus:
The Brown-headed Gull.

ease. Terns are also distinguished from the Gulls in having both the mandibles of equal length, instead of the upper one being longer than the lower. The beaks of Terns are slender, acutely pointed, and not hooked at the tip. The tail is more or less deeply forked and the legs and feet are short and weak, and although webbed, are seldom used for swimming. Terns feed on fish and other aquatic creatures which they capture by swooping down upon them from the air.

Several species of Terns occur in India and specimens of almost all the common South Indian species are exhibited.

THE INDIAN WHISKERED TERN

The Indian Whiskered Tern (*Chlidonias hybrida indica*) occurs practically throughout India and Ceylon, but it is found in South India and Ceylon only as a winter visitor. It is generally seen in large numbers frequenting the vicinity of lakes, marshes and inundated paddy fields, and flying gracefully back and forth, keeping a sharp watch for its prey. It feeds mostly on fish or tadpoles which they capture by plunging into the water, or on insects and their larvae on the marshy ground. When it is not actually flying or hunting it rests on some rock or sand bank.

THE CASPIAN TERN

The Caspian Tern (*Hydroprogne caspia caspia*) is a winter visitor to India, and may be seen singly or in pairs frequenting the sea coast, backwaters and larger lakes. In summer it breeds in Europe, Northern Africa and Western Asia, and in winter it migrates to India, Burma and Ceylon. It has also been known to breed in the Persian Gulf during April. In its breeding plumage in summer the upper part of the head is black, while in its winter plumage, the black on the head is replaced by white, streaked with black. It is easily recognized by its habit of flying leisurely over the water, with its bill directed downwards, when looking for its food. Its flight is powerful, although slow. Its call consists of a loud, harsh note. One or two eggs are laid in shallow hollows scratched in the

sand. A single specimen and an egg of this species are exhibited.

THE GULL-BILLED TERN

The Gull-billed Tern (*Gelochelidon nilotica nilotica*) is a widely distributed species extending in its range from Europe, through Western Asia to India, Burma and Ceylon. In India it occurs mostly as a winter visitor to the coastal areas, but it is also known to occur as a resident bird wherever it is found. It is reported to be very common around Madras. It frequents marshes and the larger rivers and lakes, and is often seen singly or in pairs. In its summer plumage, this Tern has a black cap on the head, but in winter, the black cap is replaced by white, streaked with black. It feeds on insects, snails, small fish and grasshoppers.

THE CEYLON LARGE CRESTED TERN

The Ceylon Large Crested Tern (*Sterna bergii velox*) is essentially a marine Tern, keeping exclusively to the sea coast, although on the Madras and Malabar coasts it has sometimes been seen at the mouths of rivers and along the course of backwaters. This and the next species are distinguished from all other Indian Terns by its very long bill which is curved slightly, and by the very pale grey colour of the plumage. It is a resident bird, and this particular race, which is the only race of the species that occurs in South India, breeds on the islands off the coast of Ceylon. It feeds on small fish, molluscs and aquatic insects, and like most other species of Terns, it flies, keeping its bill straight down, keeping a sharp look out for fish and other aquatic prey.

THE INDIAN LESSER CRESTED TERN

The Indian Lesser Crested Tern (*Sterna bengalensis bengalensis*) is a very similar to the preceding species, but is much smaller, and the upper parts of the plumage are much paler grey. This is another more or less exclusively marine species of Tern, found commonly on the coasts all over India and Ceylon and is abundant on the backwaters

of Madras and the Malabar Coast. It is often found in large flocks around bays, creeks and harbours and shallow banks, and sometimes even several miles out on the open sea, but is never found far in the interior. Like most other Terns, it often captures living fish by plunging on them suddenly during its flight, but it very rarely settles on the surface of the sea. Two specimens from Madras and one from Rameswaram are exhibited.

THE INDIAN RIVER TERN

The Indian River Tern (*Sterna aurantia*) is a graceful, slenderly built Tern with long, pointed wings, a deeply forked tail and a fine, grey and white plumage. It is found throughout India, and is essentially a river bird occurring in small flocks, flying up and down over rivers and over lakes and swamps in the vicinity of the larger rivers. In summer, the forehead, crown and nape are glossy jet black, while in winter, they are greyish white, streaked with black. They fly incessantly back and forth a few feet above the surface of the rivers, and from time to time they plunge into the water with closed wings to catch some fish which they swallow after they emerge out of the water while on their wing. They feed mainly on fish, but they also eat crustaceans, tadpoles and insects. A male specimen from Tada, Nellore District, and an egg of this species are exhibited.

THE WHITE-CHEEKED TERN

The White-cheeked Tern (*Sterna repressa*) is a fairly widely distributed species occurring mostly on the sea coasts along the Red Sea and the Persian Gulf and around India, Ceylon and the Laccadives. The upper parts of the head are black, but in winter the head is white. It is essentially a bird of the sea coasts and may often be seen far out at sea, considerable distances away from the shore. In winter, it commonly occurs in large flocks on the West Coast. It breeds during May and June in the Persian Gulf. This species has also been recorded specifically from Madras and from the lake at Ootacamund. Its habits are similar to those of the other species of marine Terns. Two specimens, of which one is a male from Ennur, are exhibited

THE COMMON TERN

The Common Tern (*Sterna hirundo hirundo*) is a winter visitor to India and in South India, it has been occasionally seen on the West Coast of Travancore. In summer the whole crown is black up to the nape, but in winter, the forehead and forecrown are white, streaked with black. It breeds in Mesopotamia and Western Central Asia on the shores of the great lakes and swamps, but in other countries it breeds mostly on the sea shore. It is a sociable bird, generally occurring in large flocks. It dives into the water for its prey from a considerable height. Its food consists mostly of fish and aquatic insects.

THE EASTERN ROSEATE TERN

The Eastern Roseate Tern (*Sterna dougalli korustes*) is recognized by its red bill tipped with black and by its scarlet legs and feet. The lower plumage is white, tinged with a delicate pink. The upper parts of the head to nape and crest are black, but in winter these parts are marked with white and the pink of the lower plumage is duller or almost absent. This is exclusively a sea Tern, occurring only on the sea coasts and adjoining islands. It breeds in Ceylon and the Andamans, and in South India, it has been recorded from the Madras Coast and Rameswaram Island. Its flight is very graceful and it is sometimes seen to sit on the surface of the water and is also able to dive well. It feeds almost entirely on small fish. Two specimens and a pair of eggs of this species from Rameswaram are exhibited in the diorama depicting Gulls and Terns on the sandy beach. The eggs are laid in a mere shallow depression scratched in the sand.

THE LITTLE TERN OR TERNLET

The Little Tern or Ternlet (*Sterna albifrons albifrons*) is a widely distributed species occurring all over Europe, North Africa and Western Asia, and wandering southwards as far as Sind in India. It is recognized by its orange yellow bill with a broad, black tip. The crown is velvety black, but in winter it is white, streaked with black. It is essentially a sea Tern, found inhabiting coastal areas and

associating in small flocks, flying back and forth on the sea coast and plunging now and then into the water to seize its prey. It feeds on small fish, crustaceans and molluscs. One specimen and an egg of this species are exhibited.

THE WHITE-SHAFTED TERNLET

The White-shafted Ternlet (*Sterna albifrons sinensis*) is distinguished from the other allied Ternlets by the shiny white shaft of the primary feathers. In summer plumage, there is an arrow-shaped white patch on the forehead running back to above the eye; in winter, the white patch on the forehead is broader and the tail is shorter. It occurs on the open coasts and on the lagoons near the sea, around Ceylon, Burma and Gulf of Manaar and also on the East Coast of India. It breeds on the sandy shores of lagoons and also on the banks of large tanks. The nest is a shallow depression scratched in the gravel or sand. A single male specimen from Pamban, Ramanathapuram District, is exhibited.

THE BLACK-SHAFTED LITTLE TERN

The Black-shafted Little Tern (*Sterna albifrons saundersi*) is similar to the preceding race, but slightly smaller, and the shafts of the first three wing quills are dusky brown or black, instead of being white. The bill is yellow, tipped with dusky black. The distribution of this little Tern ranges from the Red Sea and Persian Gulf to East Africa, the coasts of Sind in India and Ceylon. It breeds on the sand hills and shores from Karachi along the Makran Coast. In South India, this species has been obtained at Madras and from North Travancore. Its habits are more or less similar to those of the preceding form. Two specimens are exhibited.

THE SOUTHERN BROWN-WINGED TERN

The Southern Brown-winged Tern (*Sterna anaetheta antarctica*) is a widely distributed species occurring in Seychelles, Mauritius, Laccadives, Maldives, Ceylon and the West Coast of India. In summer, the crown and nape are

black, while in winter the crown is brown. This is exclusively a sea Tern, often being found far away from the land. Occasionally they rest on passing ships. Their flight is easy and graceful and there food consists of fish and crustaceans. A single specimen from Shingle Island, near Pamban, in the Gulf of Manaar, is exhibited.

THE INDIAN SOOTY TERN

The Indian Sooty Tern (*Sterna fuscata nubilosa*) is similar to the preceding species, but larger and darker. The upper plumage is dark chocolate brown and the bill and feet are black. The distribution of this Tern ranges over the Indian Ocean from the Laccadives to the Malay Archipelago, and it occurs on the coasts of India, Burma, Andamans, Ceylon and other islands in the Indian Ocean. It is almost entirely an oceanic bird and is often found at great distances from the land. It seldom comes ashore. It feeds mostly on small fish and crustaceans. It is known to breed on the Laccadives and Seychelles. A single female specimen from Rameswaram Island is exhibited.

Family RHYNCOPIDAE

This family includes the peculiar birds known as the Skimmers. Both the mandibles are greatly compressed and the lower is much longer than the upper. In fact, the lower mandible is so strongly compressed that it resembles a thin, flexible knife with a truncated end. This family comprises only a single Indian species, the Indian Skimmer.

THE INDIAN SKIMMER

The Indian Skimmer (*Rhyncops albicollis*) occurs on the larger rivers of India and Burma, but is rare in South India. They do not frequent the sea coast very much, but are found mostly on all the larger rivers. They sometimes congregate in large flocks, numbering about fifty individuals, but they also occur in pairs sometimes. On account of the extraordinary shape of their bill, they are also known as the Scissor-bills. They fly up and down close to the surface of the water and feed on the tiny shrimps

and small fish fry on the surface as they skim along the surface of the water with the aid of their knife-shaped lower bill. Their flight is ordinarily slow and leisurely but they are capable of great speed when alarmed. Two male specimens are exhibited.

Family CHARADRIIDAE

This family includes the Turnstones, Plovers and Lapwings. They are almost always found near water, but they do not actually live in marshesand swamps. On the other hand, they prefer grassy or sandy localities. Many of the smaller species are found on the sea shore. In the Turnstones (*Arenaria* spp.) the bill is straight and pointed, but in all the other species (Plovers and Lapwings) the bill is short and shaped like that of a pigeon, with the tip of the upper mandible swollen. They are ground birds, never perching on trees. Several species of Plovers and Lapwings occur in South India, and specimens of most of these are exhibited in this Gallery.

THE TURNSTONE

The Turnstone (*Arenaria interpres interpres*) is a widely distributed species, breeding in Europe and Western Asia and migrating in winter south to the Canaries, North Africa, India, Burma and the Malay Archipelago. In winter the top and sides of the head are brown, with darker streaks while in summer the head, chin and throat are white, with black streaks on the crown. It is essentially a bird of the sea coasts and occurs mostly on sandy mud flats near the sea or around lagoons. It generally goes about in small parties, turning over stones, shells, coral pieces, etc., in search ofworms, Crustacea and insects and its popular name ,'Turnstone'' is in allusion to this habit. It is said to be fairly abundant on the sea coast near Madras. It can fly very well, and its call consists of a loud, whistling note. Two female specimens are exhibited.

THE EASTERN GREY PLOVER

The Eastern Grey Plover (*Pluviils squatarola*) is another widely distributed species breeding in summer from

Eastern Siberia to Japan and migrating south in winter to Australia, South China, Burma and India. In winter, the upper plumage of adults is greyish brown and the lower parts are white, while in summer (breeding plumage) the lower parts from the chin to the middle of the abdomen are black and the upper parts are black, barred and spotted with white. It usually inhabits the sea coast, but has also been found inland. It generally occurs in small flocks and feeds on small beetles and other insects. Its call consists of a sharp whistle. Two specimens collected from Madras are exhibited.

THE KENTISH PLOVER

The Kentish Plover (*Charadrius alexandrinus alexandrinus*) is another winter visitor to India breeding in summer in Europe and Western Asia. In Northern India, it has been recorded from Sind and Khandesh in Bombay, and in South India, it has been reported from Travancore and the Malabar Coast and from Bezwada on the East Coast. In winter the upper plumage is muddy brown while in the summer breeding plumage the male has a broad, black patch above the white forehead, but the female lacks this black patch. It is usually found on sandy flats either on the banks of rivers or on the sea coast and around the borders of lagoons. It prefers open, semi-desert country or the dry, sandy shores of lakes and swamps. It can fly rapidly and also runs swiftly in short spurts. It feeds on small crustaceans, molluscs and insects. Eggs are laid in a shallow depression scraped in the sand. Two specimens are exhibited.

THE OYSTER-CATCHER

The Oyster-catcher (*Haematopus ostralegus ostralegus*) is a medium-sized bird easily recognized by its straight, strong, chisel-tipped bill. The head, neck and upper back are black and the lower back and tail coverts and the under parts from the lower neck are white. It is widely distributed over the sea coasts of Europe and Western Asia and in winter in migrates south to India where it occurs in Kutch, Sind and Kathiawar in large numbers. In South India it is a rare winter visitor, and has been found to

Fig. 65. Sterna bergii velox:
The Ceylon Large-crested Tern.

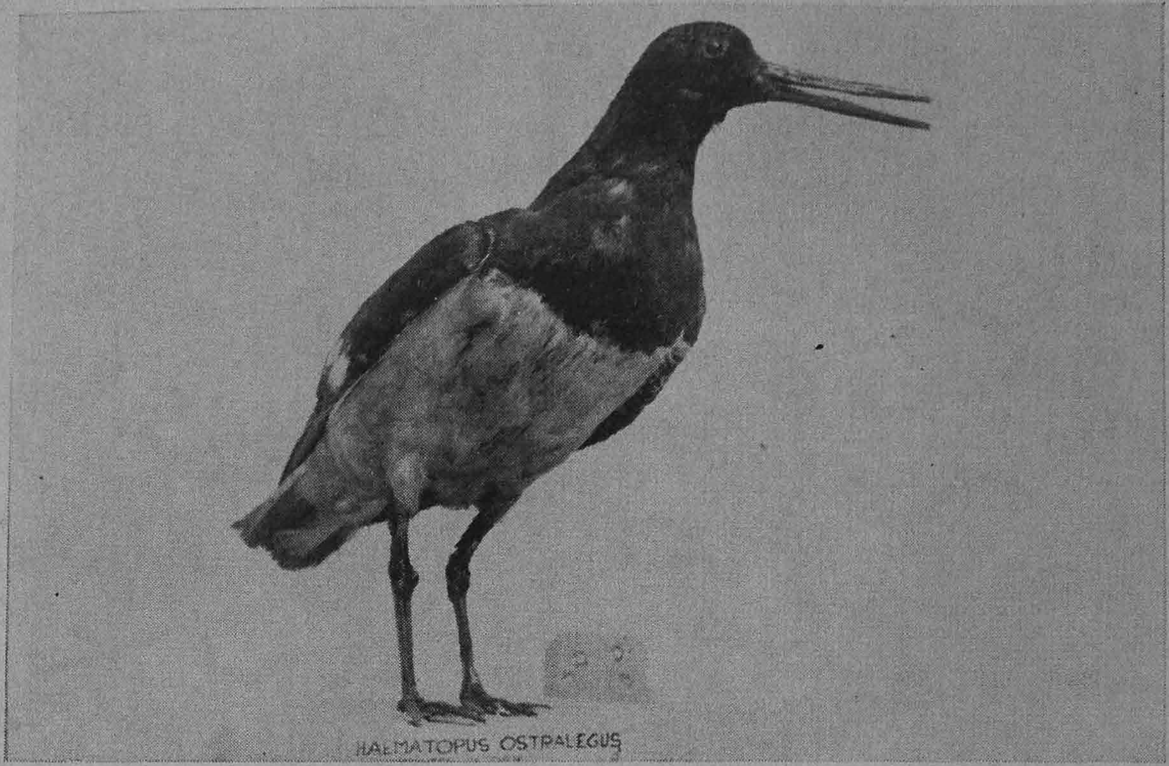


Fig. 66. Haematopus ostralegus ostralegus:
The Oyster-catcher

occur in Travancore and on the Malabar Coast. It is a bird of the sea coasts, especially rocky shores, and is usually found in small parties feeding on molluscs (chiefly oysters and mussels), worms and Crustaceans; the molluscan shells are prised open and the contents scooped out with the specially adapted bill. It is an extremely shy and wary bird. Its call consists of a loud, plaintive, whistling note. Two specimens—a male and a female—are exhibited.

THE LITTLE RINGED PLOVER

The Little Ringed Plover (*Charadrius dubius*) is a small Plover with a rather thick head, short, pigeon-like bill and bare, yellow legs. The upper plumage is sandy brown, while the lower parts are white. There is a characteristic black band round the neck. It is found throughout India and Ceylon, and in the Himalayas it occurs up to an altitude of 4,000 feet. It frequents mud flats and sandy banks of rivers and estuaries and may often be seen in small scattered parties running about in short spurts and now and then stopping to pick up a worm or an insect. Its colouration is remarkably obliterative and harmonizes so perfectly well with the surrounding sand that its presence can scarcely be detected in its native haunts. Its eggs are laid among the shingle on the sand banks and are protectively coloured. Two specimens from Madras are exhibited.

THE LARGE SAND PLOVER

The Large Sand Plover (*Charadrius leschenaulti leschenaulti*) is a widely distributed species breeding during summer in Japan, Korea, Formosa and North East China, and migrating south in winter to Australia, Eastern Africa and India. It is a rare winter visitor to South India where it has been recorded from Travancore and from around Madras. It occurs in flocks of considerable size and is found chiefly near the sea coast and around the mouths of large rivers, feeding on small insects and worms. Its call consists of a clear, flute-like whistling note. Two specimens are exhibited.

THE EASTERN GOLDEN PLOVER

The Eastern Golden Plover (*Pluvialis dominica fulvuss*) is another widely distributed species breeding in summer in Siberia and migrating south to India, Burma and the Malay Archipelago. It is a common winter visitor to the plains of India and Ceylon where it generally frequents paddy fields, grassy meadows and swampy localities. It is gregarious in habit and is usually found in flocks, but it is difficult to shoot more than one or two in a flock at a time as they are rather wary and fly away swiftly at the first shot. It is considered good for the table. It feeds on insects and worms. The eggs are stone-coloured and blackish and much blotched. Four specimens are exhibited, of which two are from Madras.

THE SOCIABLE LAPWING

The Sociable Lapwing (*Vanellus gregarius*) breeds in large numbers in Southern and Eastern Russia from March to July, but migrates south to India and North Africa in winter. In summer, the head and nape are black and the upper plumage is earthy brown with an olive tinge, while in winter the head and nape become brown. In India it has been found as far south as Ratnagiri in the Bombay State on the West Coast. It generally associates in large flocks and keeps entirely to open plains and cultivated and semi-cultivated fields, and is sometimes also found near marshes and rivers. It feeds mostly on insects of all kinds, especially on beetles and grasshoppers. Two specimens are exhibited.

THE INDIAN SPUR-WINGED PLOVER

The Indian Spur-winged Plover (*Vanellus spinosus duvaucelii*) is found practically throughout Peninsular India as far south as the Godavari and beyond Indian limits, it occurs in Burma, Indo-China and South China. The wings bear a characteristic spur. The crown, crest up to the nape, chin, throat and cheeks are black bordered with white while the upper plumage is vinous grey over the hind neck and light brown behind. It breeds mostly on the larger rivers and streams, especially hill streams,

and usually prefers rocky ground and river banks strewn with shingle. It can run about swiftly on the shingle and can also swim very well. Its call is a loud note resembling the syllables "*did-he-do-it*" or "*pity-to-do-it*". The eggs are laid among rocks or shingle or on the bare sand. It seems to be rare in South India, and only an egg of this species is exhibited.

THE INDIAN RED-WATTLED LAPWING

The Indian Red-wattled Lapwing (*Vanellus indicus indicus*) is one of the most familiar and well known Plovers found practically throughout India and in the Himalayas up to an altitude of about 6,000 feet. It is bronzy brown above and white below, the head, neck an breast being black and is readily distinguished by a broad white band extending from behind the eyes and running down the sides of the neck and by the presence of a crimson fleshy wattle in front of each eye. It frequents open country and cultivated fields and generally prefers the margins of tanks and streams. They are usually noisy birds and highly demonstrative in their habits, and generally run about on the ground in short spurts, being active and alert all the time. They feed upon insects, molluscs, worms and tiny crustaceans. Their call is quite familiar and characteristic, resembling the words "*did-he-do-it*' *or* "*pity-to-do-it*". Two specimens and an egg of this species are exhibited.

THE YELLOW-WATTLED LAPWING

The Yellow-wattled Lapwing (*Vanellus malabaricus*) is a similar bird, sandy brown in colour with a white abdomen, a black patch on the head and easily distinguished by the bright yellow fleshy wattles above and in front of the eyes. It is found throughout India and generally occurs in pairs or in small parties inhabiting open plains and dry waste land. It feeds on insects, worms, freshwater snails and small crustaceans. In its habits it mostly resembles the preceding species, but it is less noisy and as a rule frequents drier localities. Its callis a sharp sound uttered every two or three seconds, interrupted now and then by

a high-pitched, rapidly repeated note. Three young specimens from Madras and an egg of this species are exhibited.

THE BLACK-WINGED STILT

The Black-winged Stilt (*Himantopus himantopus himantopus*) is easily recognized by its strikingly long, thin, bare, reddish legs and straight, slender, black bill. The neck is long and the wings are long and pointed. It is found throughout the Indian Union as well as in Ceylon and Burma, as a resident birdand as a local migrant, and sometimes also as a winter visitor. It frequents marshes, stretches of shallow water, salt pans and mud flats and is generally seen in pairs or small flocks, wading "knee-deep' on the banks of streams and tanks. Its long, stiltlike legs enable it to wade easily in marshy ground, and is long, slender bill is adapted for digging into the soft, squelchy mud for worms, water insects, snails, etc., on which it feeds. It can walk, run and swim well, but its flight is weak. Its call consists of a squeaking, quickly repeated note. Two specimens from Madras are exhibited.

THE AVOCET

The Avocet (*Recurvirostra avosetta*) is a graceful marsh bird with a characteristic black and white plumage and is easily recognized by its slender, strongly upcurved, black beak. It is a widely distributed bird, breeding in summer in Europe and migrating south to India and Ceylon in winter. It is a fairly common winter visitor to India, inhabiting marshes, mud flats and margins of streams. It generally occurs in pairs or in small flocks on marshy ground, feeding on small crustaceans, aquatic insects and worms which it captures from the squelchy mud of the marshes by a characteristic churning or rotatory motion of its bill which is well adapted for its peculiar method of feeding in the soft, marshy ground. It runs about actively on the soft, slushy mud and can also wade with ease in shallow water. Two specimens—a male and a female—are exhibited.

Family SCOLOPACIDAE

This is a large family comprising a wide variety of mostly marsh-dwelling birds occurring in India as winter visitors such as the Curlews, Whimbrels, Godwits, Sandpipers, Stints and the Snipes. The plumage is generally dull coloured and is often some shade of grey or brown above, often streaked, and paler or whitish below. The bill is long and slender and generally furnished with sensory nerves, and invested with a keen sence of touch. These birds obtain their food mostly by probing in the soft mud with their long, pointed bills.

THE CURLEW

The Curlew (*Numenius arquata arquata*) is a dark sandy brown bird with the plumage characteristically streaked with black. The bill is long, slender and curved downwards. It is a winter visitor to India and is commonly found throughout India, Burma and Ceylon during winter. It arrives in September and leaves again by April. These birds are found singly or in pairs or in small parties on the banks of rivers and on marshes, but are rather more numerous on the sea coast. They may be seen usually running along the edge of the water or on the sea shore at low tide probing into the soft mud for their food. They feed on insects, larvae, shrimps and snails as well as on seeds, sea weeds and berries. They are extremely shy and wary and hence very difficult to approach. Their call consists of a shrill scream uttered mostly on the wing. Two specimens—a male and a female from Madras—are exhibited.

THE WHIMBREL

The Whimbrel (*Numenius phaeopus phaeopus*) is closely related to the Curlew which it resembles in its habits and general appearance, but it is smaller and distinguished by the presence of a white stripe along the centre of its dark crown and whitish eyebrows. It is also a winter visitor to India and is found in fairly large flocks on the shores of lakes and in marshy localities, feeding on insects, worms, molluscs and sometimes on berries and seeds. In summer

it breeds in Northern Europe, Iceland, Greenland and Western Siberia and migrates south to North Africa, Arabia and India during winter. It is shy and wary and difficult to approach. In Ceylon it frequents the mangrove swamps and shores of lagoons. Its call consists of a musical note recalling the syllables "*tetti-tetti-tetti*". Two specimens from Madras are exhibited.

THE BLACK-TAILED GODWIT

The Black-tailed Godwit (*Limosa limosa limosa*) more or less resembles the Curlew and the Whimbrel in general appearance but has a more slender, straight and slightly upcurved bill. The plumage is variegated with brown and white. This is a somewhat rarer winter visitor than the preceding species of this family, arriving about the first week of October and leaving again in March or April, and found practically throughout India, Ceylon and Burma during the winter months, frequenting marshy ground and the edges of tanks and brackish water pools. In summer it breeds in Russia and Iceland and migrates southwards to India in winter. It often occurs in large flocks, usually in association with other similar wading birds. It feeds on insects, molluscs, worms and crabs as well as on grains and seeds, especially in captivity. Its flight is swift and powerful and it is considered an excellent bird for the table. Two specimens from Madras are exhibited.

The next genus, *Tringa,* includes a fairly large number of familiar South Indian species of Sandpipers and allied birds such as the Redshanks.

THE WESTERN TEREK SANDPIPER

The Western Terek Sandpiper (*Tringa terek*) is a common winter visitor to the coastal areas and the larger tidal rivers of India, but does not appear to be abundant in South India. Its upper plumage is greyish brown with dark shaft stripes. It breeds in summer in Northern Russia and Siberia and migrates south in winter to Africa, Arabia and India. In its habits it resembles the other species of Sandpipers generally, and frequents marshes and swampy localities, but in India it is generally said to be

more frequent along the sea coast. It feeds on insects, molluscs and worms and can swim well. Its call consists of a clear, musical, whistling note. Two specimens are exhibited.

THE GREEN SANDPIPER

The Green Sandpiper (*Tringa ochrophus*) is a winter visitor to India, and although extremely common in Northern Inida, it is somewhat uncommon in South India, but its range of distribution extends as far south as Ceylon. It is distinguished from the Wood Sandpiper by its somewhat larger size and the bronze-green shine on the upper plumage. It is generally seen singly or in pairs on the sea coast, or in the vicinity of tanks and lakes and on muddy river banks, usually running about actively and feeding mainly on insects. It is shy and difficult to approach and its call consists of a musical whistling note. A single male specimen from Chingleput is exhibited.

THE MARSH SANDPIPER

The Marsh Sandpiper (*Tringa stagnatilis*) is a rather uncommon winter visitor to India. It breeds during summer over an extensive area in Europe and Siberia and migrates south to Africa, Arabia, India, Burma, Malaya and Australia in winter. In South India, large flocks of this bird sometimes occur on the banks of the Tiruchur lake in South Malabar. Unlike many of the other members of this family, this bird does not frequent so much the sea shore, but keeps to lakes and swamps in the interior. It feeds on insects, molluscs and small worms. Two specimens from Madras are exhibited.

THE COMMON SANDPIPER

The Common Sandpiper (*Tringa hypoleucos hypoleucos*) is a widely distributed species, breeding in summer throughout the greater part of Europe and Western Siberia and extending east to Japan and south to Kashmir and Tibet. In winter it migrates southwards to Africa, India, East Indies and Australia. It is a common winter visitor to the plains and hills of South India, arriving early (about

August) and leaving again rather late (in May). This graceful Sandpiper usually occurs as a solitary bird, inhabiting marshes and banks of rivers and hill sreams. It is met with practically everywhere both inland and along the sea coast, wherever water is available. It is very active in its habits and keeps constantly flying or running about. It often flies low over the surface of the water with characteristic rapidly vibrating movements of its wings, uttering its shrill, piping call. It feeds on insects, freshwater snails, worms, grubs and beetles. Two specimens are exhibited.

THE WOOD SANDPIPER OR SPOTTED SANDPIPER

The Wood Sandpiper or Spotted Sandpiper (*Tringa glareola*) is one of the most abundant of our Snipe-like birds found in winter practically throughout India near tanks and rivers. The upper plumage is sepia brown, while the under parts are indistinctly spotted with white. In summer the whole plumage is streaked and spotted with dark brown. It breeds during summer in Europe and Northern Asia and migrates southwards to Africa, India, Southern Asia and Australia in winter. It is a fairly common cold weather visitor to the plains and hills of India, arriving in August and leaving by May. They collect in large flocks and often run about swiftly on the soft mud of the marshy swamps they inhabit, feeding on insects, worms, small snails and larvae. They utter a shrill, quickly repeated note as they fly off, Two specimens from Madras are exhibited.

THE REDSHANK

The Redshank (*Tringa totanus totanus*) is a somewhat large species of Sandpiper with a greyish brown upper plumage and white under parts, the breast being finely streaked with brown. The legs are long, slender and orange red. In winter the plumage is more greyish without the black markings and streaks. It breeds in summer throughout Europe and Northern Asia and migrates south to South Africa, Southern Asia, India and Burma in winter. It is commonly met with singly or in small flocks on

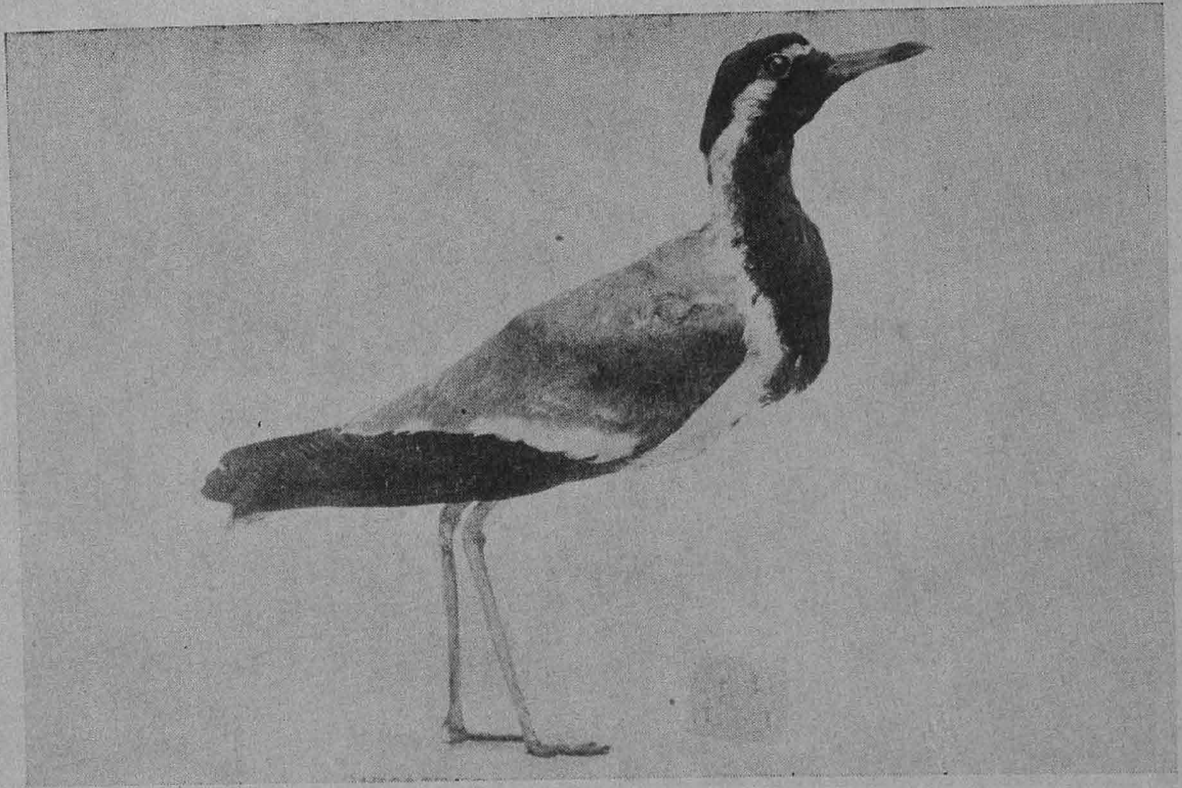


Fig. 67. Vanellus indicus indicus :
The Indian Red-wattled Lapwing.

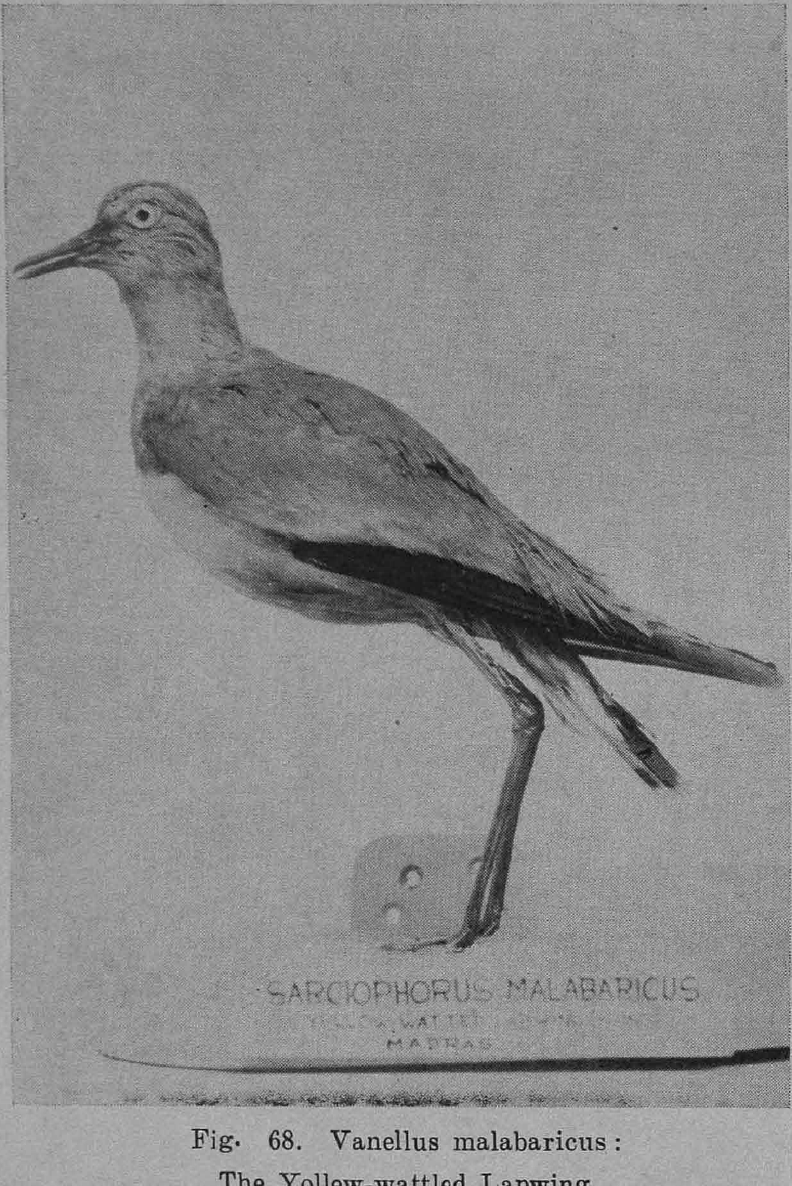


Fig. 68. Vanellus malabaricus:
The Yollew-wattled Lapwing.

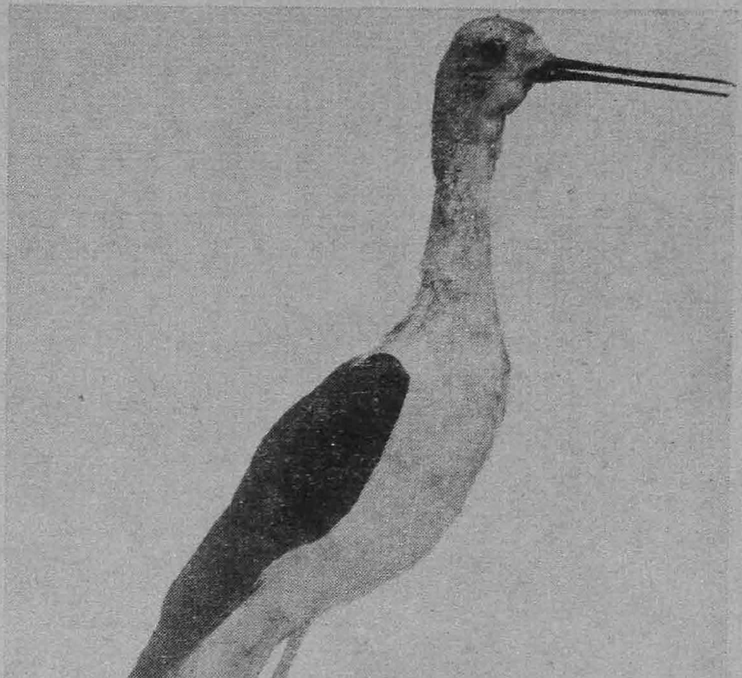


Fig. 69. Himantopus himantopus himantopus:
The Black-winged Stilt.

Fig. 70. Recurvirostra avosetta:
The Avocet.

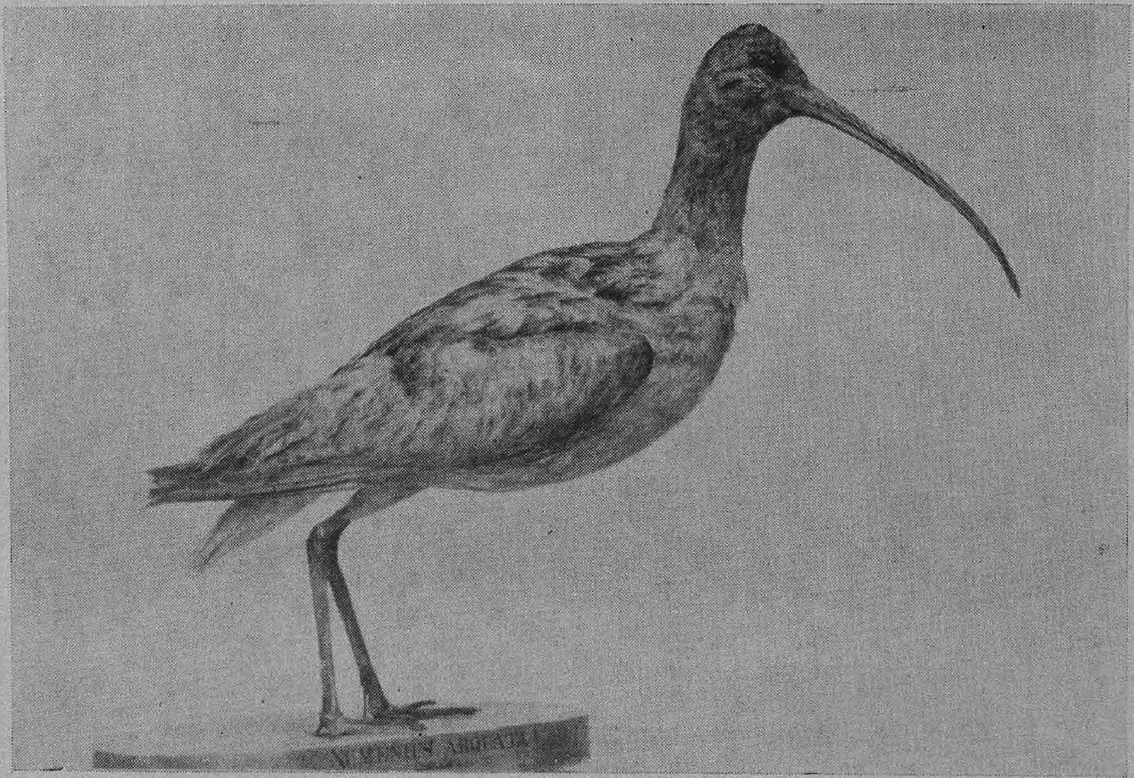


Fig. 71. Numenius arquata arquata:
The Curlew.

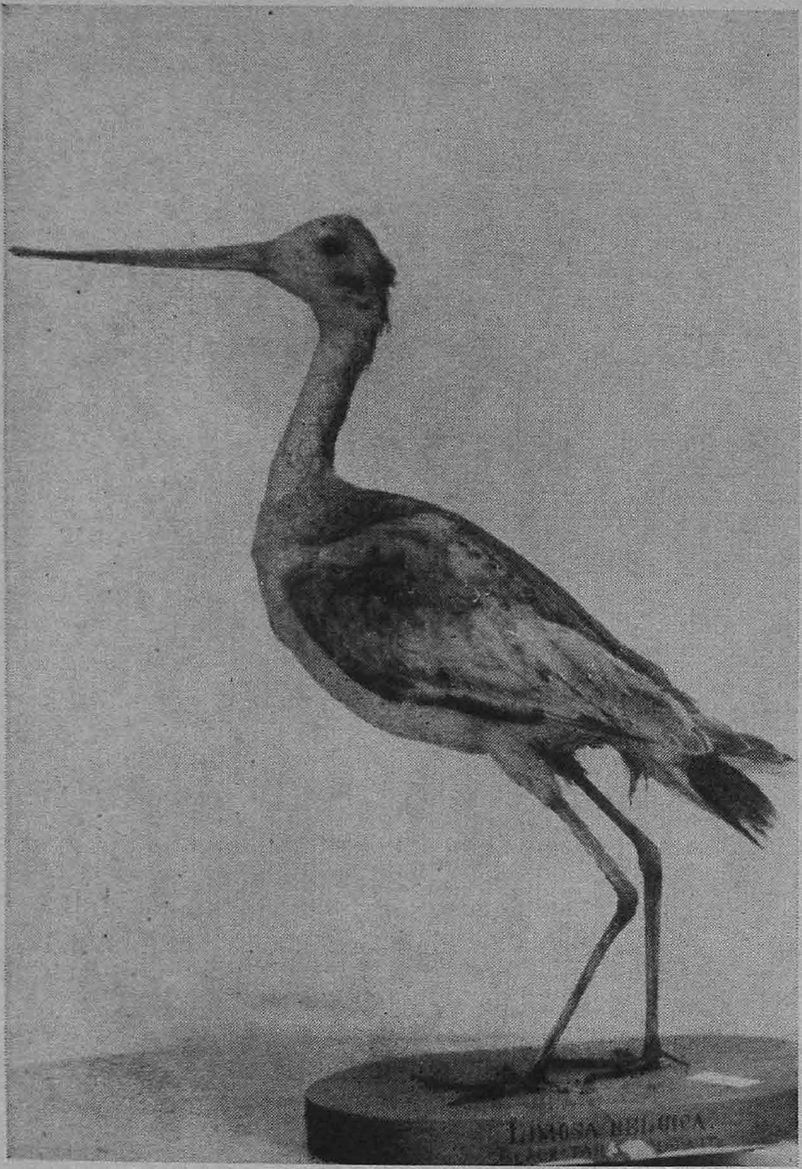


Fig. 72. Limosa limosa limosa :
The Black-tailed Godwit.

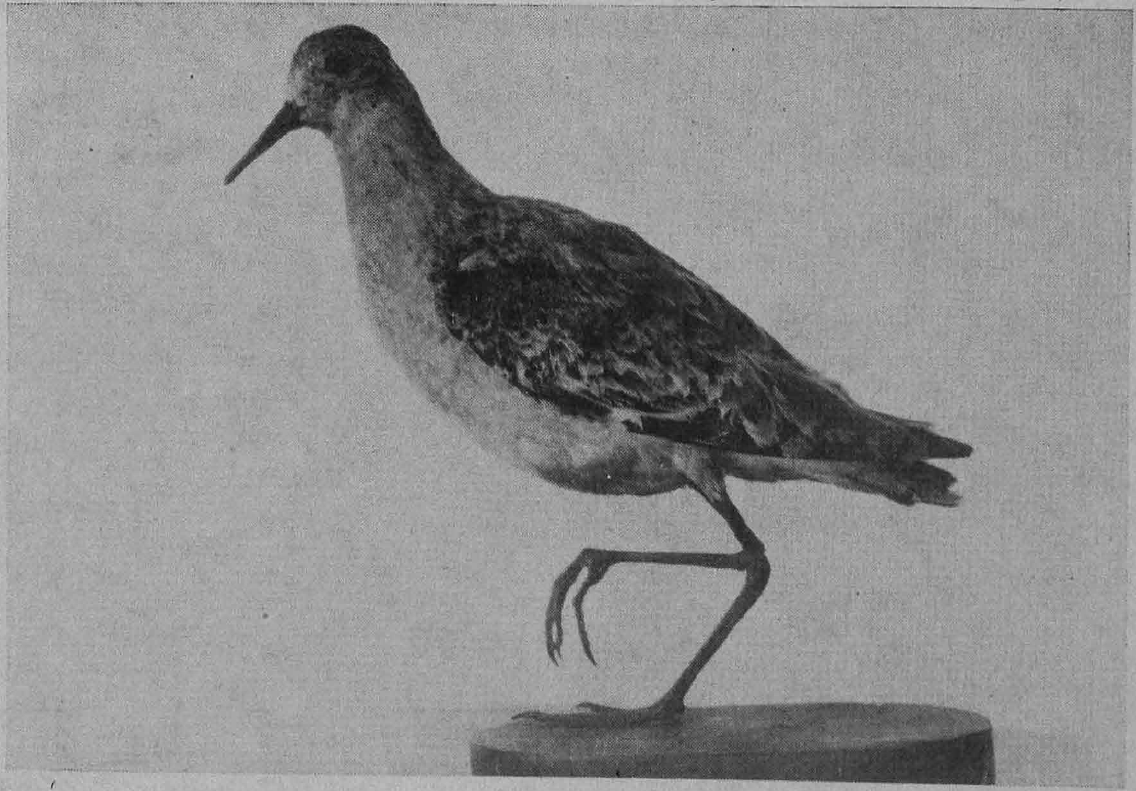


Fig. 73. Philomachus pugnax:
The Ruff and Reeve. (Male)

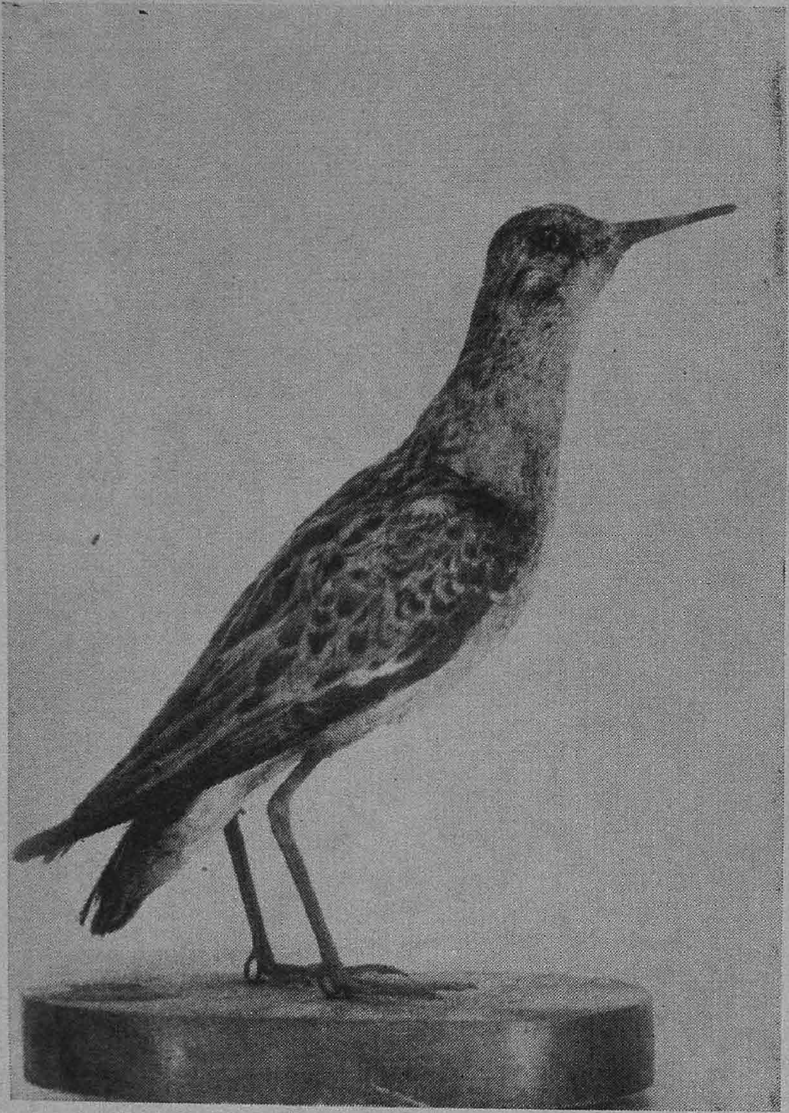


Fig. 74. Philomachus pugnax:
The Ruff and Reeve. (Female)

marshes, paddy fields, estuaries and on the muddy banks of tidal rivers. Its habits are similar to those of the other Sandpipers and it is often found in mixed flocks in association with other species of Sandpipers and Snipes. They are shy birds and not easily approached. Their call consists of a shrill, musical, piping note. Two specimens from Madras are exhibited.

THE SPOTTED OR DUSKY REDSHANK

The Spotted or Dusky Redshank (*Tringa erythropus*) is another winter visitor to India, frequenting more or less the same localities as the Greenshank. It breeds in summer throughout Northern Europe and Asia and migrates south in winter to Africa, India, Burma, China and the Malay Peninsula. It is distinguished from the ordinary Redshank by the head, neck and lower parts being sooty black in the breeding plumage and the upper plumage being ashy brown with the crown and neck spotless during winter. It frequents marshes or river banks where it may be seen wading about singly or in pairs or sometimes in large flocks. It is quite active in its habits and feeds on insects, worms, molluscs, small fishes and tadpoles. Two specimens are exhibited.

THE GREENSHANK

The Greenshank (*Tringa nebularia*) is another species of Sandpiper visiting India in winter and frequenting more or less the same localities as the Redshank, but much less common. It breeds in Northern Europe and Asia during summer and migrates south to India, Ceylon and Burma in winter. The plumage is grey and brown above and white below, and in winter the top of the head and sides of the neck are blackish brown, while in summer plumage the head is streaked with brown and the fore-neck and sides of the breast are spotted with brown. It is usually found in India as a solitary bird on the edges of streams and tanks and on sandy river banks, feeding on small insects, worms, grubs, molluscs and small fish. It is a shy bird, and when disturbed, flies off swiftly high into the air uttering its loud alarm whistle. Two specimens from Madras are exhibited.

THE RUFF AND REEVE

The Ruff and Reeve (*Philomachus pugnax*) is another winter visitor to India, arriving late in August or early September and leaving again in April. It breeds in Northern Europe and Asia in summer, migrating south in winter to Africa, India, Burma and Ceylon. It is greyish brown, the head being streaked with darker brown and the rest of the upper plumage bearing a bold, scale-like pattern. It occurs in flocks on marshy ground and tidal mud flats, but it appears to be rare in South India. It feeds on all kinds of insects, worms and grubs as well as on berries, seeds, rice and other grain. It is a good sporting bird and is considered excellent eating. These birds perform interesting courtship displays during the breeding season. Three specimens from Madras are exhibited.

THE SANDERLING

The Sanderling (*Calidris albus*) is a widely distributed species breeding over a greater part of the Arctic regions and migrating south in winter to all the Southern continents. It is a common visitor to the North West of India, but in Southern India it seems to be a rare winter visitor. The upper plumage in summer is rufous, each feather bearing a broad, black centre, and in winter the upper plumage is black with broad, white edges. It often associates with Stints, Sandpipers, etc., and frequents marshes and mud flats, feeding on all kinds of insects, small molluscs, crustacea, etc. Its call consists of a shrill, sharp, distinct note. In South India it has been recorded only once on the East Coast on the sea shore in Nellore District and on another occasion on the Malabar Coast. A single specimen from Madras is exhibited.

The next four species comprise the Stints. These are small Waders, with long, slender and flexible bills, either straight, or slightly curving downwards, and with long wings, short tails, short legs and short toes. About four species of this genus occur in South India and specimens of all these are exhibited in this Gallery.

THE LITTLE STINT

The Little Stint (*Calidris minutus*) is a tiny bird, about the size of a House Sparrow, but with longer wings and legs. The upper plumage is dusky or mottled greyish brown and the under parts are white. The legs and bill are blackish. It breeds in Siberia and Northern Europe in summer, but migrates south as far as South Africa, India and Ceylon in winter. It is a sociable species, associating in flocks often along with other species of Waders. These birds are common practically throughout India, when they arrive in winter, and are found mostly on inland marshes and tidal mud flats near the sea shore, feeding on insects, small worms, crustaceans and molluscs, and occasionally also on seeds and grain. They utter a soft, musicial call as they fly. They are said to be very abundant in Ceylon during the North East monsoon. Two specimens are exhibited.

TEMMINCK'S STINT

Temminck s Stint (*Calidris temminckii*) is very similar to the preceding species and is equally small, being about the size of a House Sparrow, but with longer wings and legs. It is slightly darker above than the Little Stint, and the outer tail feathers are white instead of being brownish, and the legs are olive green instead of being blackish. It is a widely distributed species, breeding in Northern Europe during summer and wandering southwards to Africa and Southern Asia in winter. It occurs in flocks often associated with the Little Stint, on marshes and mud flats, feeding on insects and small worms. In India it is found all over the North in winter, in large numbers, but is less common in South India and still rarer in Ceylon. Its flight is swift and it utters a shrill note as it flies. Two specimens are exhibited.

THE ASIATIC PECTORAL SANDPIPER

The Asiatic Pectoral Sandpiper (*Calidris acuminatus*) is a rare winter visitor to India. The crown and hind neck are rufous with black streaks and the upper plumage is also rufous, each feather being centred with black. In

winter the upper parts are less rufous and black. It breeds in North Eastern Siberia and Alaska in summer and migrates south to China, Indo-China, India, Malaya and Australia. It frequents marshes and tidal mud flats and its habits are much the same as those of other species of Stints. There is some uncertainty regarding the exact systematic position of this species, and it is sometimes separated from *Erolia* into a separate genus on account of its sharply pointed and long central tail feathers. A single female specimen Vandalur, Chingleput District, collected in 1915 is exhibited, but strangely enough there is no previous record of this species from South India.

THE CURLEW STINT, OR CURLEW SANDPIPER, OR PYGMY SANDPIPER

The Curlew Stint, or Curlew Sandpiper, or Pygmy Sandpiper (*Calidris testaceus*) is another winter visitor, about the size of the Wood Sandpiper, with the crown, neck and back of a rich rufous colour and with black centres to the feathers in its summer plumage; in winter plumage, the upper parts are ashy brown. It breeds in the North of Siberia and migrates south to Africa and the whole of Southern Asia and Australia. It often associates in flocks of large size and frequents the sea shore and the marshy banks of rivers and lakes, feeding on small Crustacea, sand-hoppers, worms and insects. In South India it is known to occur in large numbers on the Coast of North Travancore from October to April. It is considered to be excellent for the table. Two specimens from Madras are exhibited.

THE RED-NECKED PHALAROPE

The Red-necked Phalarope (*Phaleropus lobatus*) is another small Stint-like bird, breeding in the Arctic regions, mostly in the circumpolar zone, in June and July and migrating south to North Africa, India, Malaya, China and Japan in winter. In breeding plumage, the upper parts are dark greyish brown and the feathers edged outwardly with rufous, while in winter, the upper plumage is grey and

the feathers of the mantle are edged with white. In summer there is a chestnut collar round the neck. In South India, it has been specifically recorded from Madras, where at times it is not uncommon. These birds associate in flocks and may often be seen far out on the sea many miles away from the land. They can swim and dive well and their flight is quite swift. Their call consists of a clear, sharp, twittering note. The males incubate the eggs, while the females perform the courtship displays. They feed on worms, crustaceans, etc., and at times become quite tame. A single male specimen from Madras is exhibited.

The next and last group of birds in this Family comprise the Woodcocks and the Snipes and these are sometimes grouped in a separate Subfamily, the Scolopacinae. They differ from the others of the Family in having the eyes placed very far back in the head. The bill is long, slender and very sensitive and the toes are not webbed.

THE WOODCOCK

The Woodcock (*Scoopax rusticola rusticola*) is a fairly medium-sized bird, about the size of a domestic pigeon, but with a long bill (about three inches in length). It may be distinguished from all other Snipes and Snipe-like birds by its larger size and heavier build and by its beautifully mottled grey, brown, black and rufous plumage. The bill is fleshy at the base, darkening to blackish brown at the tip. It breeds throughout Northern and Central Europe in summer, and in winter it migrates southwards to the Mediterranean countries of Europe, North West Africa, Southern Asia to India, China and Japan. Within Indian limits it breeds in the Himalayas from 8,000 to 12,000 feet. In South India the Woodcock occurs regularly only on the higher ranges of the hills, arriving about the beginning of November and leaving again during March, and in the Nilgiris it is quite common. It is more or less crepescular in its habits, being active only at dusk and seldom moving during the day. It feeds on insects, grubs, small worms and fresh water snails. Its flight is very swift; it often flies in a wavering and zig-zag manner in and out of

trees at a remarkably rapid pace. It is considered an excellent bird for the table. A single specimen from the Shevroys is exhibited.

THE WOOD SNIPE

The Wood Snipe (*Capella nemoricola*) may be distinguished from the Common or Fantail Snipe and the Pintail Snipe by its larger size, blacker upper plumage and by the whole of the lower plumage being barred with brown and white. It breeds in the Himalayas during summer, and in winter it migrates south to the hills of Coorg, Wynaad, Pulneys, Anamalais, the Shevroys and the Nilgiris, and occasionally it visits Ceylon also. It is usually found singly, and as its popular name suggests, it frequents swampy regions in the woods or on their outskirts. It is a rather sluggish bird, rising heavily and flies slowly and silently only for a short distance at a time. It feeds on aquatic insects and soft grubs, but it also seems to swallow hard seeds and gravel. A single male specimen from Ootacamund, Nilgiris, is exhibited.

THE COMMON, OR FANTAIL SNIPE

The Common, or Fantail Snipe (*Capella gallinago gallinago*) is a common winter visitor to India, breeding in summer in Northern and Central Europe, and arriving in India in large numbers about September and leaving in May. It is a typical Snipe with straight and slender bill and a dark brown upper plumage, streaked with black and rufous, and white below. The colour harmonizes well with the surroundings. These Snipes are generally met with singly or in small parties of four or five birds in wet rice fields and marshy ground on the banks of streams and tidal creeks. They are excellent game birds and afford good sport. They rise abruptly from the ground with a sharp note resembling the syllable "*pench*" when disturbed. Their flight is extremely swift and often follows a zig-zag course. They feed on worms, grubs, insects and small snails. A single female specimen from Chingleput is exhibited.

THE GREAT SNIPE

The Great Snipe (*Capella media*) is another winter visitor to India, but less common than the preceding species. It resembles the Fantail Snipe, but is larger and the feathers of the breast bear broad, sepia-coloured bars. In winter, the plumage is more sandy buff than in summer and the blackish markings on the neck are larger and coarser. This species breeds during summer in Northern Europe and Western Siberia and in winter it occurs all over Africa and over the greater part of Asia, including India. It frequents swamps and marshy fields and is more exclusively nocturnal in its habits than the other species of Snipes. It feeds almost entirely by night and seldom moves by day. Its flight is comparatively slow and heavy. It has been specifically recorded from Madras, Bangalore and Arkonam in South India A single specimen from Arkonam is exhibited

THE PINTAIL SNIPE

The Pintail Snipe (*Capella stenura*) is another common species of Snipe very similar to the Fantail Snipe and often found in association with it. It may, however, be distinguished from it by the stiff, narrow, pin-like outer tail feather. It breeds in summer in Northern Europe and Eastern Siberia and migrates south in winter all over China, Burma, India and Ceylon. Within Indian limits it breeds in June in North Cachar in Assam. This species is often found in company with the Fantail Snipe in rice fields and marshes, but in South India, the Pintail Snipe is far more numerous on the hills and it also frequents much drier localities such as dry grassland and thin bush jungle. Its bill is less sensitive than that of the Fantail Snipe. It feeds less on worms and more frequently on insects, larvae and molluscs. On the wing, it is heavier and appears darker than the Fantail Snipe. Three specimens from Madras are exhibited.

SWINHOE'S SNIPE

Swinhoe's Snipe (*Capella megala*) is almost exactly like the Pintail Snipe in colouration, but may be distinguished from it by the presence of only twenty feathers in

the tail, whereas the Pintail Snipe has normally twenty-six feathers in the tail. It breeds in Eastern Siberia and Nothern China during summer, and migrates to South China, Borneo, Philippines and India in winter. However, it seems to be a much rarer winter visitor to India than the other species of Snipes and only about half dozen specimens have been definitely recorded from Chingleput District in Southern India, although many more specimens may have been collected. It is recorded as an occasional straggler in Ceylon. Very little has been recorded about its habits. A single female specimen is exhibited.

THE JACK SNIPE

The Jack Snipe (*Capella minima*) is a very small Snipe and is another winter visitor to the hills and plains of India, but much less common and scarcer than the Fantail Snipe, and is distinguished from the latter by its wedge-shaped tail composed of twelve pointed feathers. They frequent small patches of thick cover in corners of paddy fields and marshes, and fly very swiftly, often in a zig-zag and erratic manner. They breed throughout Northern Europe and Asia during summer and migrate south to Northern Africa and many parts of Southern and Central Asia, including India, Burma and Ceylon. As a rule they sit obstinately and are very reluctant to rise, sometimes allowing sportsmen to almost stamp upon them before they will rise and fly. They seldom utter any cry when they rise. They feed on worms, insects, small molluscs and seeds of marsh plants. A single female specimen is exhibited.

ORDER CICONIIFORMES

This Order includes the Ibises, Storks, Herons, Spoonbills, Egrets and their allies. They are medium-sized to very large birds, with long necks and legs and in many forms the bill too is very long and usually straight. The feet are partially webbed and the wings are well developed. Their flight is powerful.

These birds inhabit marshes and swamps and are adapted for wading. They frequently also perch on trees

Fig. 75. Capella nemoricola :
The Wood Snipe.

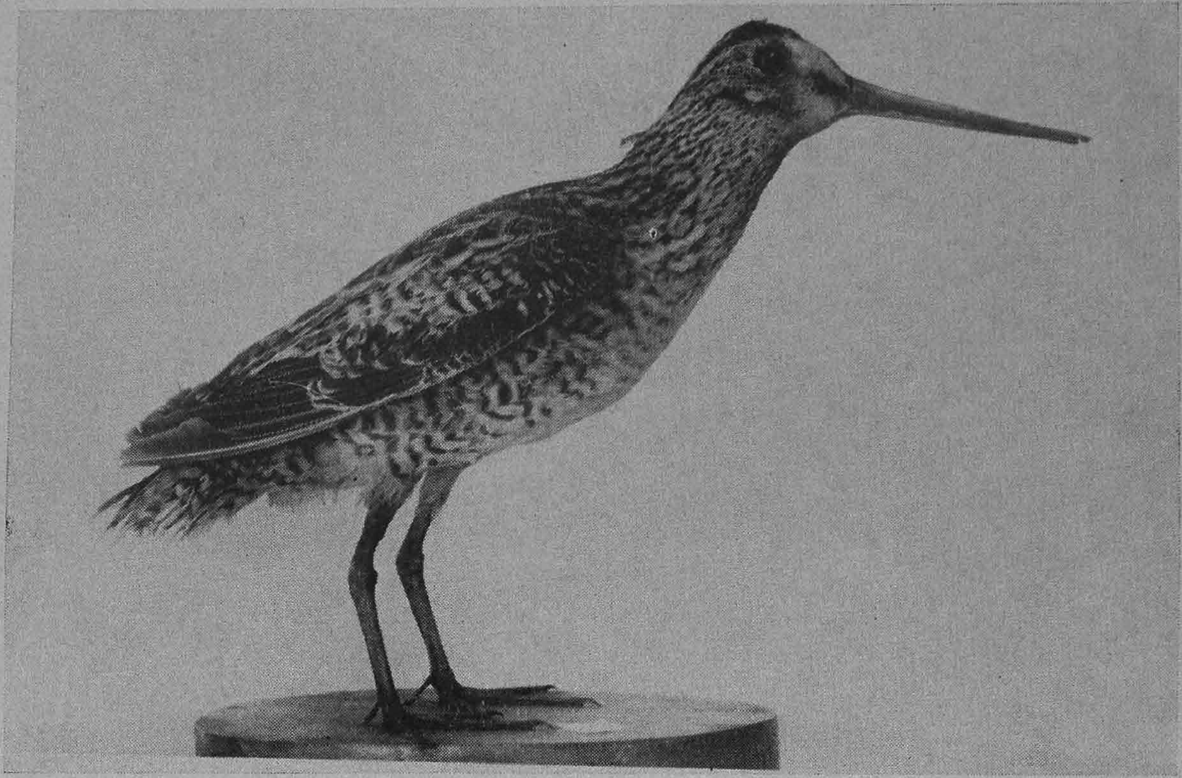


Fig. 76. Capella megala:
Swinhoe's Snipe.

Fig. 77. Ardea cinerea cinerea :
The Common Grey Heron.

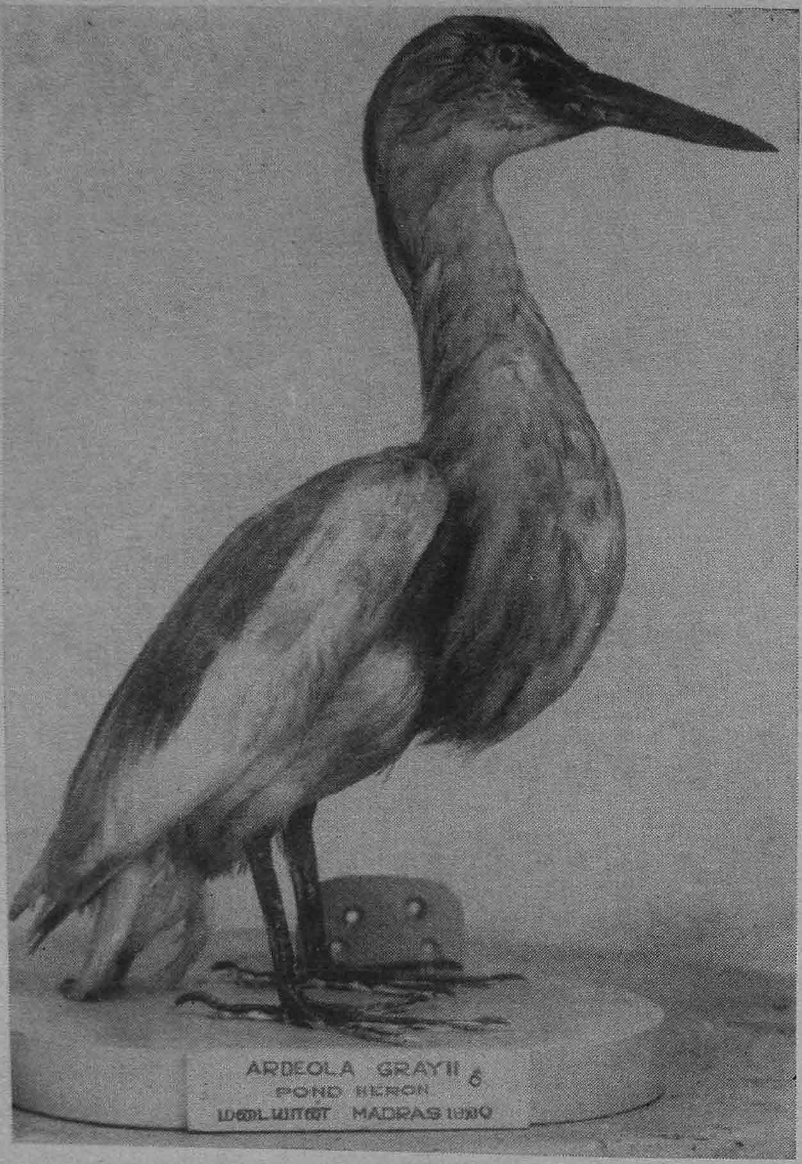


Fig. 78. Ardeola grayii:
The Indian Pond Heron or Paddy Bird.

Fig. 79. Nycticorax nycticorax nycticorax :
The Night Heron.

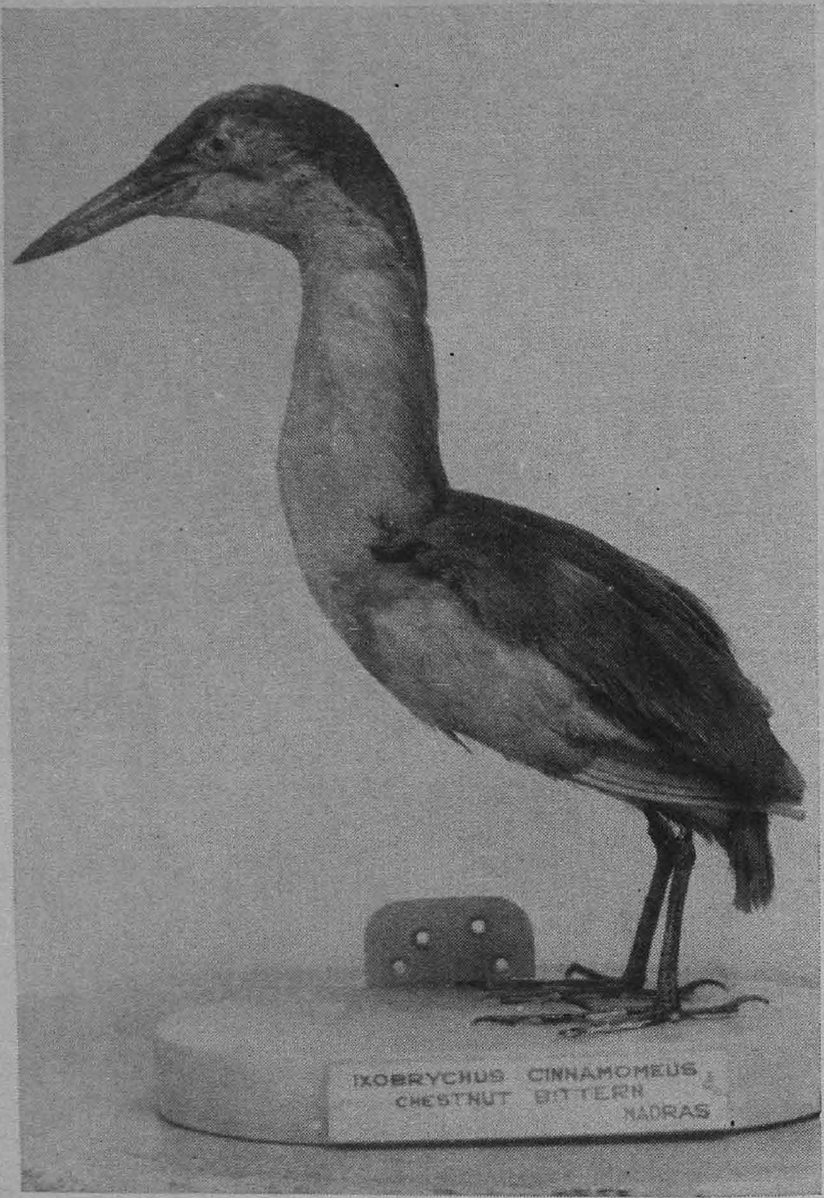


Fig. 80. Ixobrychus cinnamomeus:
The Chestnut Bittern.

Fig. 81. Dupetor flavicollis flavicollis:
The Black Bittern.

Fig. 82. Ciconia episcopus episcopus:
The White-necked Stork.

or among reeds. They feed on fish, molluscs, crustaceans and other aquatic creatures. Their nest is usually a platform of sticks and twigs placed in a tree and their eggs are generally white or pale blue and unspotted.

The Indian species of this Order belong to four families, the Ardeidae (Herons, Egrets and Bitterns), the Ciconiidae (Storks), the Threskiornithidae (Ibises and Spoonbills) and the Phoenicopteridae (Falmingoes). Specimens of most of the common South Indian species belonging to all these families are exhibited in this Gallery.

Family ARDEIDAE

This family comprises the Herons, Egrets and Bitterns. In this family, although the neck is long, it is distinctly kinked in the middle by a special arrangement of the neck vertebrae so that the neck can be retracted into a compact, S-shaped structure which can be thrust out suddenly and forcibly when the birds capture their prey. The toes are long and thin and the middle front claw bears a comb-like serration on its inner side. On the sides of the rump and breast there are peculiar "powder-down" patches secreting a powdery substance used in preening the feathers. The tongue is long and thin. They feed mostly on fish.

THE EASTERN PURPLE HERON

The Eastern Purple Heron (*Ardea purpurea manillensis*) is a common permanent resident bird found practically throughout India, Burma and Ceylon, inhabiting the margins of tanks and the marshy banks of rivers and swamps wherever there are plenty of reeds, rushes and long grass. It is crepescular in its habits and feeds mostly in the mornings and in the evenings. It often stands motionless on one leg, with the head tucked into its shoulders, keeping a keen watch over any passing prey which it seizes with an extremely rapid thrust of its neck and bill. It feeds on fish, frogs, insects and molluscs and even young birds. It often utters a loud, harsh cry as it rises and flies along, especially when alarmed. A single specimen from Madras and an egg of this species are exhibited.

THE COMMON GREY HERON

The Common Grey Heron (*Ardea cinerea cinerea*) is a large, stork-like bird with an ashy grey upper plumage, white crown and neck and greyish white under parts. The neck is long, slender and S-shaped, with a prominent, black dotted line running down the middle of the neck on its under side. The head bears a long black crest. This bird is found practically throughout India, Burma and Ceylon and usually occurs on the margins of lakes and tanks, estuaries and marshes. It may be usually seen wading slowly in shallow water looking out for fish or other passing prey. Its flight is very powerful and its call consists of a deep, harsh, croaking sound uttered during flight. These birds nest gregariously in trees. A single specimen of this species is exhibited in the diorama of Egrets in this Gallery.

THE LARGE EGRET

The Large Egret (*Egretta alba alba*) is a rare winter visitor to India, occurring mostly in the North as far south as the Kistna District. It breeds in summer in South East Europe, Siberia, Northern China and Japan. In the breeding plumage, it is pure white throughout, with three sets of dorsal plumes, extending beyond the tail and the bill is black; in the non-breeding phase, the dorsal plumes are dropped and the bill is yellow. In India it is usually found as a solitary bird in well watered localities. It feeds on fish, frogs, tadpoles, fresh water molluscs and also on large insects and young birds, small rodents, etc. Its call consists of a loud, harsh croak. Its flight is powerful, but slower than that of the smaller species of Egrets. A single male specimen from Kistna District and an egg of this species are exhibited.

THE LITTLE EGRET

The Little Egret (*Egretta garzetta garzetta*) is a much more familiar and commoner bird than the preceding species. It is a rather slenderly built, lanky, pure white bird about the size of a domestic hen but with longer neck and legs. It occurs throughout India, Ceylon and Burma

and is usually found in flocks, inhabiting marshes and the vicinity of rivers, streams and tidal mud flats. It may be distinguished from the very similar and closely allied Cattle Egret in its non-breeding plumage by its *black* and not yellow beak. During the breeding season these birds develop a long, flowing crest of two narrow plumes and a few elegant, filament-like ornamental feathers (aigrettes) on the back and breast. They roost gregariously in trees and feed on insects, frogs, reptiles, etc. A single specimen is exhibited in the systematic series and another is included in the diorama depicting the habitat of Egrets.

THE CATTLE EGRET

The Cattle Egret (*Bubulcus ibis coromandus*) is very similar in size and appearance to the preceding species, but may be readily distinguished from it by the bill being yellow instead of being black in the non-breeding plumage. During the breeding season, the head, neck and back acquire a delicate, orange-buff colour. They are gregarious and are often met with in flocks on meadows and grassland, both on the margins of tanks and streams as well as quite away from water. They generally accompany grazing cattle, feeding on the grasshoppers and other insects disturbed by the animals. They also pick up mites and ticks from the backs of oxen and buffaloes. In addition, they also, of course, eat frogs, fish, worms and molluscs. They often become quite tame and confiding. They roost in large numbers at night on trees. A specimen of this species is included in the diorama depicting the habits of Egrets, besides another specimen which is exhibited separately in the systematic series.

THE INDIAN REEF HERON

The Indian Reef Heron (*Egretta gularis schistacea*) is much rarer than the two preceding species of Egrets and is found mostly on the coast of Western India. It has two colour phases, one pure white and the other dark bluish slaty with a white patch on the chin. In the breeding season it developes a drooping crest of two narrow plumes. It is often found singly along the sea coast, on mangrove

swamps, reefs and rocky shores, feeding mainly on molluscs, crustaceans and fishes. They are crepecular in habits and nest in mangrove trees, etc., in colonies. Two specimens—a male and a female—from Kistna District, are exhibited.

THE INDIAN POND HERON OR PADDY BIRD

The Indian Pond Heron or Paddy Bird (*Ardeola grayii*) is one of the most common and familiar species of marsh birds found all over India, Ceylon and Burma wherever water is available. Its plumage is dull earthy brown, but during the breeding season it develops maroon, filamentous plumes on its back and a long, white crest on its crown. These birds are especially common on water-logged paddy fields, pools and puddles, but they are also found on the sea shore. They generally stand motionless, hunched up, looking for any passing prey that might come within their range. They feed mainly on frogs, fish, crabs, worms and insects. Their flight is steady and their call consists of a harsh, croaking sound uttered in flight. A male specimen from Madras and an egg of this species are exhibited.

THE INDIAN LITTLE GREEN HERON OR THE LITTLE GREEN BITTERN

The Indian Little Green Heron or the Little Green Bittern (*Butorides striatus javanicus*) is very similar to the Pond Heron in general appearance, but the plumage is more blackish grey, strongly tinged with glossy green or bronze green above. The crown and crest are shiny greenish black. It is found throughout India, Burma and Ceylon and is generally seen singly among reeds and rushes on the water's edge and on mangrove swamps. It is mostly crepescular and secretive in its habits and is normally a silent bird. It often selects dark and shady bushes for shelter and feeds in the early mornings and late evenings. During the heat of the day it sits hunched up on the branch of some bush near the water. It feeds on small fish, frogs, crabs and molluscs. A male specimen from Madras and an egg of this species are exhibited.

THE NIGHT HERON

The Night Heron (*Nycticorax nycticorax nycticorax*) more or less resembles the Paddy Bird or Pond Heron in size and appearance, but has a stouter bill. The plumage is ashy grey above and the back, crown and nape, including the occipital crest, are black. It is found throughout India, Burma and Ceylon, commonly in all the better watered tracts, both inland and along the sea coast. They are largely crepescular and nocturnal in their habits, and live in colonies which spend the day roosting in trees, often well away from water. They feed mostly at night and during the evening and morning twilight. At evening dusk, individuals or small parties may be seen flying out to their accustomed feeding grounds on the margins of tanks and lakes uttering their loud, distinctive call, "*kwaark*". Their food consists of fish, frogs, aquatic insects, dragonflies, etc. The breeding season ranges from April to September. Their nest is composed of twigs placed in trees gregariously, and their nesting colonies may extend to several adjacent trees. A diorama showing a small group of Night Herons with their nests and young ones, and two separate specimens, a male and a female, in the systematic series, are exhibited.

THE CHESTNUT BITTERN

The Chestnut Bittern (*Ixobrychus cinnamomeus*) is somewhat similar in appearance to the Paddy Bird, but is smaller and the upper plumage is chestnut-cinnamon in colour, while the throat is white with a median stripe along the neck. The upper breast is chestnut and black. It occurs almost throughout India and also in Burma and Ceylon and is a very common resident bird frequenting all well watered localities, especially in marshes and paddy fields and in bushes and reeds at the edges of ponds and tanks. It is shy and secretive, and mostly crepescular in its habits. When cornered or disturbed, it assumes a characteristic attitude, remaining motionless, stretching out its neck vertically and pointing the bill upwards. It feeds on fish, frogs, insects and other small animals and breeds during the monsoon months, especially on the inundated paddy fields. A single male specimen from Madras is exhibited.

THE BLACK BITTERN

The Black Bittern (*Dupetor flavicollis flavicollis*) is distinguished by its dark, slaty grey or almost black crown and upper plumage in the male; the female is, however, more brownish. It is found practically throughout India, Burma and Ceylon, and in South India it occurs both on the hills and in the plains in Malabar, around Madras and on the Nilgiris, Wynaad and Travancore. It frequents paddy fields, marshes, swamps and reed beds and is not uncommon on backwaters with dense vegetation on their banks. It is mainly nocturnal, and is shy and secretive in its habits, remaining hidden among the reeds and bushes during the day and coming out to feed only at dusk. Its food consists largely of fish, but frogs and insects are also eaten. During the breeding season it utters a loud, hoarse, croaking sound. A single specimen is exhibited.

THE BITTERN

The Bittern (*Botaurus stellaris stellaris*) is a rare winter visitor to India, breeding in summer throughout the temperate regions of Europe and Asia as far as Japan in the East, and migrating south to India and Burma in winter. It is distinguished from the preceding species of Bitterns by its shorter and stouter bill, larger feet and the long, loose, ornamental plumes down the fore-neck and upper breast. It is nocturnal in habits and frequents marshy ground overgrown with long grass and reeds and bushes on the banks of tanks and rivers. It feeds on fish, frogs, small reptiles and aquatic insects and even the young of other birds. Its call is a loud, booming note, uttered only in the breeding season. It is considered an excellent bird for the table. A single specimen is exhibited.

Family CICONIIDAE

This family includes the Storks. They are mostly very large, tall birds with stout, long, heavy looking and nearly straight beak. The wings are long, but the tail is short. The legs are very long and bare and the toes are partially webbed at the base. The tongue is very small. They fly

with the neck extended and often soar very high into the sky. They lack voice muscles and hence, as a rule, they are silent.

Specimens of most of the common South Indian species of Storks, namely, the White Stork, the Indian White-necked Stork, the Black-necked Stork, the Painted Stork and the Open-billed Stork, are exhibited in this Gallery.

THE WHITE STORK

The White Stork (*Ciconia ciconia ciconia*) is a winter visitor to India from Europe, Northern Africa and Western Asia. In winter it is common in Northern India, but rare south of the Deccan. Its neck and legs are long and its plumage pure white, except for the black wings. The legs and the heavy, long, pointed bill are red. They arrive in pairs or in small flocks and frequent open plains and marshes, feeding on large insects, reptiles and fish. Before commencing their northward migration in spring they collect in large flocks. Their flight is powerful and they often soar steadily high up in the sky, recalling the flight of a vulture. They lack voice muscles and are therefore silent, but during the breeding season they produce a loud clattering noise by clapping their bills together. Their nest is a large platform of sticks placed on tall trees or on tops of high buildings. A single specimen is exhibited.

THE WHITE-NECKED STORK

The White-necked Stork (*Ciconia episcopus episcopus*) is much commoner than the preceding species in South India and is a permanent resident bird, found practically throughout India, Burma and Ceylon and in the Himalayas up to an elevation of about 3,000 feet. It is easily recognized by its glossy black plumage, prominent white neck, a black patch on the crown, a heavy blackish bill and long, reddish legs. It generally occurs singly, in pairs or in small parties frequenting well watered open plains and cultivated tracts as well as marshes and ponds. It has the habit of often standing motionless on one leg for considerable periods and at other times it wades slowly through

the marshes in search of its prey. It feeds on frogs, reptiles, crabs, insects, molluscs and sometimes also on small mammals. Like the White Stork it can soar high into the sky. A single male specimen from Godavari is exhibited.

THE BLACK-NECKED STORK

The Black-necked Stork (*Xenorhynchus asiaticus asiaticus*) is distinguished from the other Inidan species of Storks by its enormous black bill, glistening black head and neck and white lower plumage. The wings are pied with black and white markings. It is a permanent resident species found in all well watered localities throughout India, Ceylon and Burma and is usually seen singly along the banks of rivers and jheels and on marshes, wading in shallow water. Its habits are much the same as those of the other Storks, but it prefers the vicinity of large rivers in the plains. It feeds more exclusively on fish than the other species of Storks, but it also feeds on frogs, reptiles, crabs, molluscs, etc. It builds its nest, which consists of an enormous platform of sticks, on large trees. A single specimen is exhibited.

THE PAINTED STORK

The Painted Stork (*Ibis leucocephalus*) is a large Stork readily distinguished by its long, heavy, yellow bill slightly curved at the tip, and yellow face. The plumage is white, with glossy greenish black markings above and faint rose pink on the shoulders and on the wings. It is a permanent resident species found throughout India, Burma and Ceylon in well watered areas, occurring in pairs, small parties or large flocks along rivers, large tanks, jheels and marshes. It may often be seen stalking about leisurely in shallow water, with the bill immersed in water and partially open in search of fish, frogs, crabs or other prey on which it feeds. During the heat of the day it stands motionless, hunched up, in knee deep water. Its nest is a large platform of sticks built on trees standing in water. A single specimen and an egg of this species are exhibited.

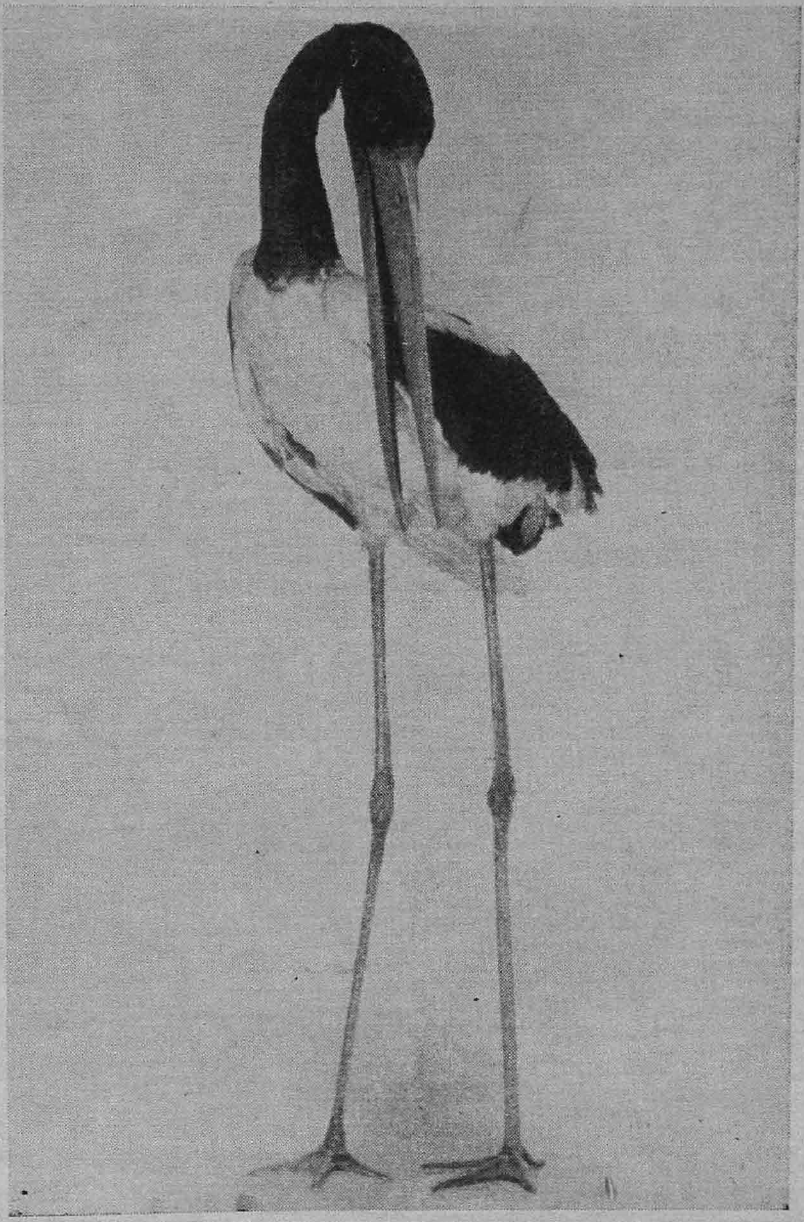


Fig. 83. Xenorhynchus asiaticus asiaticus: The Black-necked Stork.

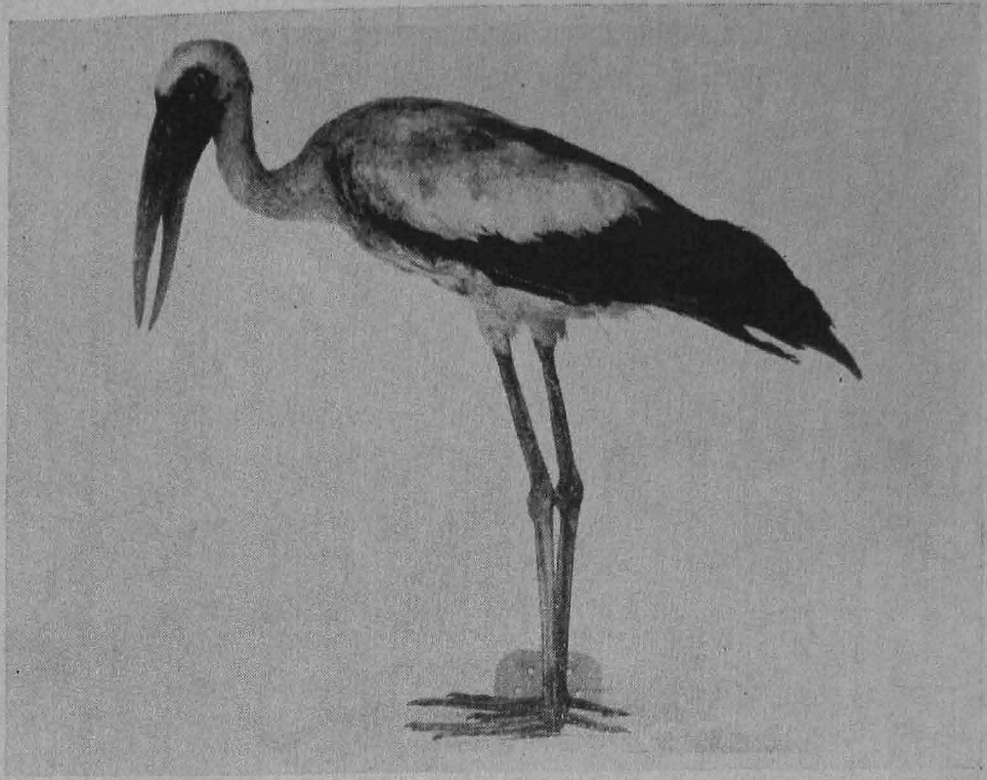


Fig. 84. Anastomus oscitans:

The Open-billed Stork.

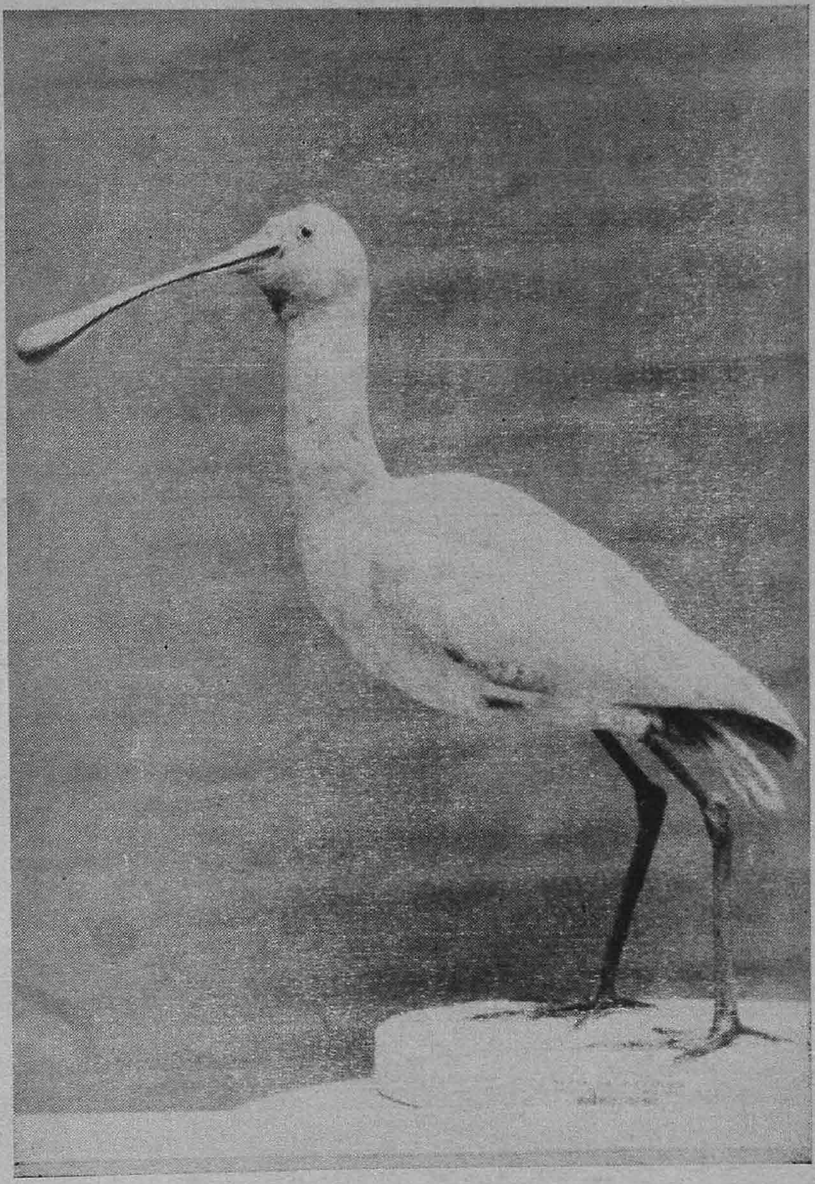


Fig. 85. Platalea leucorodia major:
The Indian Spoonbill.

Fig. 86. Threskiornis melanocephala: The White Ibis.

Fig. 87. Plegadis falcinellus falcinellus : The Glossy Ibis.

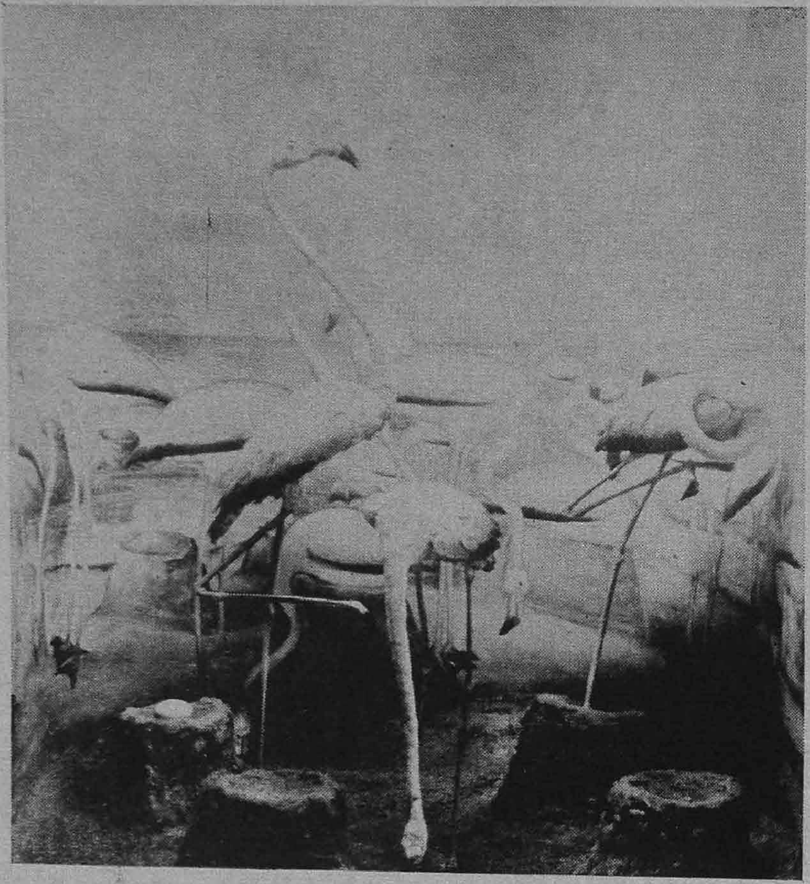


Fig. 88. Phoenicopterus roseus: The Common Flamingo.

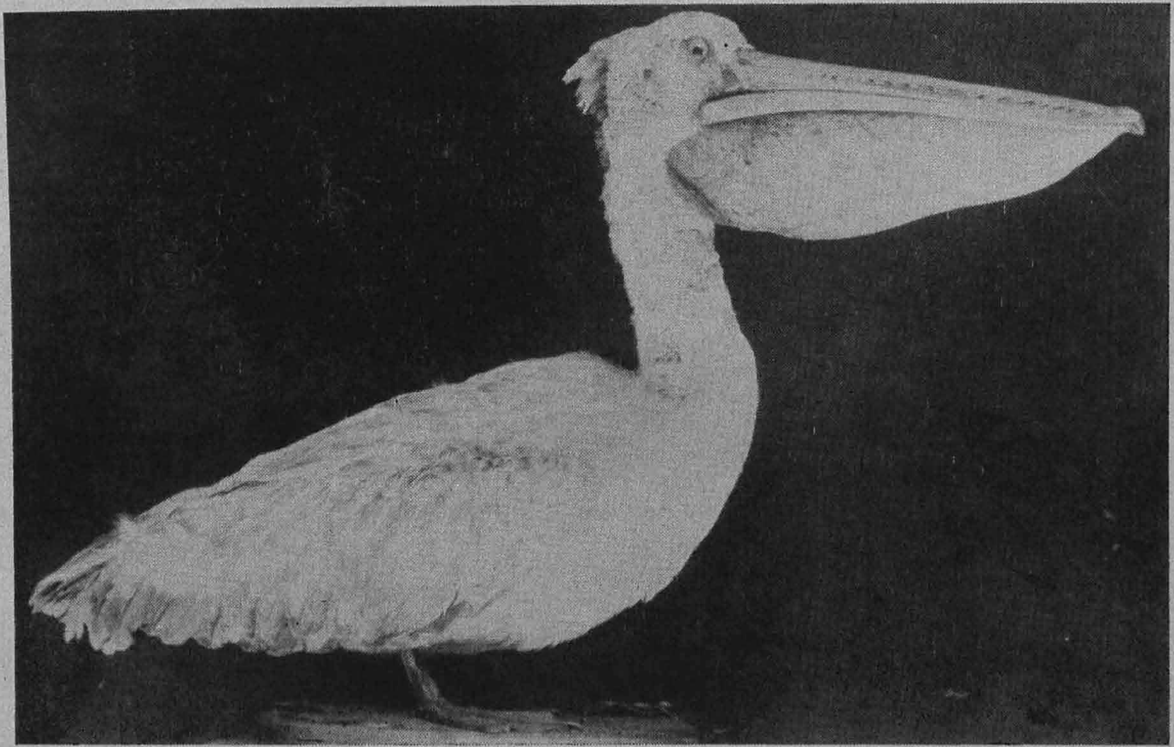


Fig. 89. *Pelicanus philippensis philippensis*:

The Spot-billed or Grey Pelican.

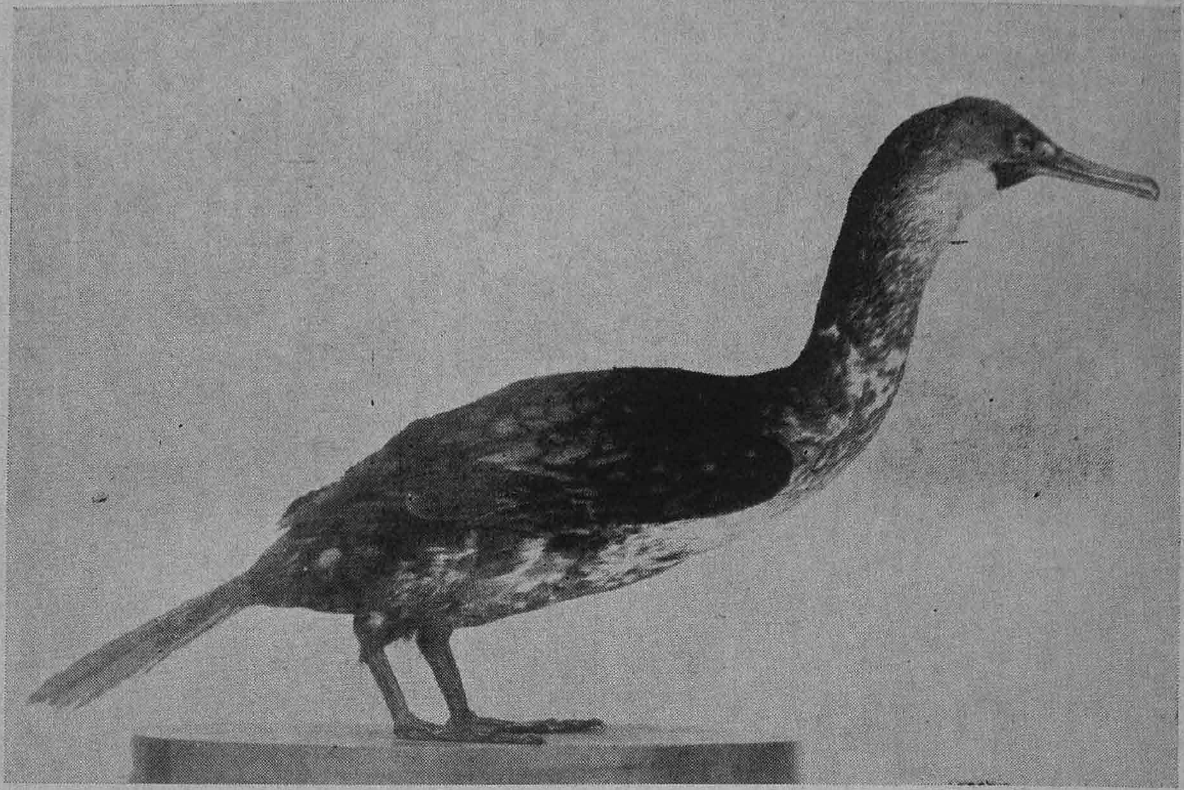


Fig. 90. Phalacrocorax fusicollis:
The Indian Shag.

THE OPEN-BILLED STORK

The Open-billed Stork (*Anastomus oscitans*) is perhaps one of the commonest and most widely distributed species of Storks. It is a rather small, greyish white or white Stork, with black patches on the wings and readily distinguished by its curiously shaped black bill in which the mandibles are arched, leaving a narrow gap between them. It is found throughout India, Burma and Ceylon and usually occurs in small parties or flocks on the banks of streams, ponds and lakes. In its general habits, it does not differ appreciably from the other species of Storks. It feeds chiefly on molluscs such as the pond snails. Its peculiarly shaped bill (with a gap between the lower and upper mandibles) appears to be particularly well adapted for crushing and opening the thick shells of the large apple snail, *Pila globosa*, and extracting their soft parts. But it also feeds on frogs, crabs, large insects and other small creatures. It breeds in large colonies mostly from November to March in South India. A single specimen and an egg of this species are exhibited.

Family THRESKIORNITHIDAE

This family includes the Ibises and Spoonbills. These are closely related to the Storks, but are generally smaller and more lightly built birds. The head and neck are naked. Ibises have the beak long, tapering and curved downwards while in Spoonbills the beak is flattened and nearly straight but broad and flattened at the tip in the form of a spatula. Like the Storks they fly with the neck extended.

Specimens of all the Indian species of this family, namely, the Indian Spoonbill, the White Ibis, the Indian Black Ibis and the Glossy Ibis are exhibited.

THE INDIAN SPOONBILL

The Indian Spoonbill (*Platalea leucorodia major*) is easily recognized by its remarkable, large, flat, black-and-yellow spatula-shaped bill. The neck and legs are long, the

legs being black and the plumage pure white, with a pale yellowish brown patch on the fore-neck. It is found throughout India, Burma and Ceylon, frequenting marshes and banks of rivers, being usually seen either singly, or in flocks of about ten to twenty individuals. The flocks wade in the shallow water on the marshes and tidal mud flats and feed on insects, frogs and small molluscs as well as vegetable matter which they can find in the soft, wet mud. They feed most actively in the mornings and evenings, and towards evening the flocks fly in long, diagonal or V-shaped formations. They breed in colonies during the winter months. A single specimen from Pulicat Lake near Tada, Nellore District, is exhibited.

THE WHITE IBIS

The White Ibis (*Threskiornis melanocephala*) is closely related to the Spoonbill and is very similar to it in its habits. It is a large bird with a white plumage and naked, black head and neck and with a long, stout, downwardly curved beak. It is found throughout India, Ceylon and Burma, inhabiting large rivers, lakes and marshes where it occurs in small parties wading actively in shallow water and probing into the soft mud in search of its prey. It feeds chiefly on small fish, but frogs, worms, insects and crustaceans are also eaten. It is, as a rule, a silent bird, but it produces a few low grunting sounds while breeding. It breeds in colonies during the winter months in South India. A single specimen and an egg of this species are exhibited.

THE INDIAN BLACK IBIS

The Indian Black Ibis (*Pseudibis papillosa papillosa*) is a somewhat large, blackish bird with a white patch on the plumage near the shoulder and a long, downwardly curved beak. The head is black with a crimson patch on the crown. This species is found mostly in the drier parts of India as far south as Mysore, but not in Ceylon. The Black Ibis is much less of a marsh bird than the White Ibis and is usually found in dry, cultivated areas or open ground, although it often also occurs in the vicinity of

rivers and jheels. It feeds on insects, Crustacea, reptiles and also on grain, often in cultivated fields and fallow land. It ofen roosts in large trees and flocks of these birds usually fly in V-shaped formations. In the breeding season it produces a loud, harsh, screaming cry, usually uttered on the wing It breeds in colonies, nesting high up on the trees. A single specimen is exhibited.

THE GLOSSY IBIS

The Glossy Ibis (*Plegadis falcinellus falcinellus*) is distinguished by the crown, sides of the head, chin and forethroat bearing a distinct, purplish and greenish gloss. The tail is black, glossed with green at the base. The bill is dull, pale greenish or dark livid or plumbeous brown. It is a widely distributed species, but in India it occurs as a permanent resident bird, although it migrates locally a great deal. It is mainly a marsh loving bird, often associating in large flocks in the vicinity of large tanks and on marshes and swamps. It feeds mostly on worms, insects, molluscs and crustaceans. It becomes easily tame and confiding, and is said to be an excellent bird for the table. Its glistening blackish green and chestnut colour distinguishes it from the other Indian species of Ibises. A single specimen is exhibited.

Family PHOENICOPTERIDAE

This family comprises the Flamingos which constitute a distinct group by themselves and appear in some respects to be a connecting link between the Storks on the one hand and the Ducks and Geese on the other. Although the neck and legs are long and resemble those of the Storks, Flamingos are readily distingiushed from the Storks mainly by their peculiar large beak, which is bent downwards at an angle in the middle. The mandibles also bear a row of parallel ridges at their edges, forming a sieve-like apparatus. The tongue is large and fleshy. The three front toes are webbed together and the hind toe is very small or absent.

This family includes a single Indian species, the Common Flamingo (*Phoenicopterus ruber roseus*), which is represented in this Gallery by a diorama which attempts to show a small section of the breeding colony in its natural haunts.

THE COMMON FLAMINGO

The Common Flamingo (*Phoenicopterus roseus*) is readily recognized by its long, slender neck, thin, bare, red, stork-like legs and the peculiar, heavy, pink bill, bent at an angle in the middle. The wings are bright scarlet bordered with black. Flamingos occur all over the Indian Union and Ceylon in scattered flocks, but they are locally abundant only in certain areas. They frequent shallow, brackish water jheels and lagoons and feed in shallow water with their long necks bent down and the head submerged. Their bill is adapted for feeding in the soft, muddy bottom, the laminated fringe on the bill helping to sift the small food particles from the slushy water. Their food consists of crustaceans, worms, insect larvae and even seeds of aquatic plants.

Thousands of Flamingos breed in a vast colony every year in the Rann of Kutch. This is their only breeding place in India. A colony of nesting Flamingos is aptly called a "Flamingo City". The diorama exhibited represents a tiny portion of the vast "Flamingo City" of the Rann of Kutch, and attempts to show a few of their characteristic mud nests.

Flamingos breed during September and October when the flooded rivers of the mainland inundate the Rann. The nest is a conical mound of earth which the bird makes out of mud scraped with its bill. Old nests are renovated and used year after year. The eggs are laid in the shallow depression at the top of the mud nest. During seasons other than the rainy season, the Rann of Kutch is a dry, blazing desert, when the Flamingos resort to the banks of rivers and lakes in other parts of India. Their call consists of a loud honking sound, and flocks often fly in long, diagonal or V-shaped formations with out stretched legs and neck.

ORDER PELICANIFORMES (= STEGANOPODES)

This Order includes the Pelicans, Cormorants, Shags and Snake Birds or Darters, besides several other large marine birds such as the Gannets and Frigate birds which are not represented in South India. Birds of this Order are endowed with powerful flight and most of them can swim very well, but they are poor at walking on the ground. They have all the four toes united bp webs and they feed mostly on fish and other aquatic creatures.

Specimens of the common South Indian species belonging to the two families, Pelicanidae (Pelicans) and the Phalacrocoracidae (Cormorants, Shags and Darters) are exhibited.

Family PELICANIDAE

This family includes the Pelicans. These are large, heavily built, ungainly swimming birds which have the beak enormously elongated and flattened. The lower mandible supports a large, distensible pouch used by the bird as a scoop net for capturing fish. The wings are long and powerful.

THE SPOTTED-BILLED OR GREY PELICAN

The Spotted-billed or Grey Pelican (*Pelicanus philippensis philippensis*) is the commonest Indian species of Pelican. It is a large, heavily built water bird found throughout India, Ceylon and Burma in all the better watered areas and occurs as a permanent resident bird or a local migrant in many parts of South India. This species is recognized by the large blue-black spots along the edge of the upper mandible. They are highly gregarious and often associate in large flocks which either float on the water or rest on the sandy banks of rivers and estuaries. They feed almost exclusively on fish which they catch by swimming collectively in a semi-circle, driving the fish into shallow water and scooping them up in their large pouch

which serves as a net. Their flight is rather slow, but strong and steady and at times they soar at great heights along with Storks. They breed in large colonies from November to April, nesting on tall trees. Two specimens are exhibited.

Family PHALACROCORACIDAE

This family includes the Comorants and Shags (Subfamily Phalacrocoracinae) and the Darters or Snake-birds (Subfamily Plotinae). They are medium to fairly large-sized birds, and are extremely well adapted for swimming and diving. Their plumage is wholly or mainly black, especially on the upper parts and is hard and close-textured, with an under coat of soft down. In the Cormorants and Shags the bill is hooked at the tip while in the Darters, the bill is straight and sharply pointed. These birds live almost exclusively on fish.

Specimens of all the four Indian species of this family, namely, the Indian Large Cormorant, the Indian Shag, the Little Cormorant and the Darter or Snake-bird are exhibited in this Gallery.

Subfamily PHALACROCORACINAE

Cormorants and Shags

THE INDIAN LARGE CORMORANT

The Indian Large Cormorant (*Phalacrocorax carbo sinensis*) is the largest of our Indian species of Cormorants, about the size of a domestic duck, with a black plumage. In the breeding season, however, there are some white patches on the head, neck and on the flanks. It is a widely distributed species, and within Indian limits these birds are often found on most large rivers and swamps. They feed voraciously on fish and are able to swim well with most of the body submerged under the water. They can also dive extremely well. Their flight is strong but their progression on land is poor. They may often be seen preening their feathers or basking on some bare

branch or stump of a tree standing in or near water. They produce a harsh, croaking note as well as a variety of guttural sounds. They breed during the winter months, nesting in colonies. A single specimen is exhibited.

THE INDIAN SHAG

The Indian Shag (*Phalacrocorax fuscicollis*) is slightly smaller than the preceding species and is intermediate in size between the Large Cormorant and the Little Cormorant. Its plumage is black like that of the Large Cormorant, but in its breeding plumage, there are white feather tufts behind the ears and white spots on the head and neck. It is found all over India and Ceylon, frequenting large rivers, lakes and jheels. It lives gregariously in flocks and moves about locally a great deal. This is the species which is trained by Chinese fishermen to catch fish. It is very voracious, often depleting a small tank of its fish fauna in a comparatively short time. It captures fish by pursuing them under water. It breeds in colonies, nesting in trees, from July to December. A single male specimen from Tada, Nellore District, is exhibited.

THE LITTLE CORMORANT

The Little Cormorant (*Phalacrocorax niger*) is the smallest of our Indian species of Cormorants being about the size of a large Jungle Crow, but duck-like in appearance. Its plumage is glossy black, with a somewhat long, stiff tail. The bill is sharply hooked at the tip. It occurs throughout India, Burma and Ceylon and is usually found singly or in flocks on tanks, lakes, jheels and brackish water lagoons, estuaries and swamps. These Cormorants live exclusively on fish which they pursue and capture under water, often collectively in a team, like the Pelicans. When they have fed fully, they perch upright on a rock or a bare stump of a tree standing in or near water and bask in the sun for long hours wih outstretched wings. They are expert divers and swimmers, and breed in colonies, nesting in trees, often in company with other

water birds. A single male specimen from Tada, in the Nellore District, is exhibited.

Subfamily PLOTINAE

Darters

THE INDIAN DARTER OR SNAKE-BIRD

The Indian Darter or Snake-bird (*Anhinga rufa melanogaster*) is a somewhat large-sized Cormorant-like acquatic bird with a longish body and a black plumage bearing characteristic silvery grey streaks and is readily recognized by its very long, slender, S-shaped, serpentine neck and pointed, sword-like beak. It occurs throughout India, Burma and Ceylon, and may be found singly or in small parties of two or three frequenting streams, rivers and village ponds. These birds closely resemble the Cormorants in their habits, but are less gregarious and more exclusively restricted to freshwater. They are even more expert than the Cormorants in diving and swimming and chase their prey consisting mainly of fish, below the surface of the water, swimming at great speed. While swimming, the Darter keeps its entire body submerged and only holds its slender, snakelike neck above the surface. The neck is highly specialized and wonderfully adapted to enable the birds to shoot out their pointed bill at their prey with great force and rapidity. It breeds gregariously, nesting in trees in colonies along with other water birds. Two specimens, one from Chingleput and another, recently secured from Pudukkottai, are exhibited.

ORDER ANSERIFORMES

This Order comprises the Ducks, Geese, Swans and their allies. They are exclusively water birds, adapted for swimming. The bill is broad and flattened, the inner edges of both mandibles bearing horny, comb-like ridges for sifting food particles from the water. The legs are rather short and the three front toes are fully webbed,

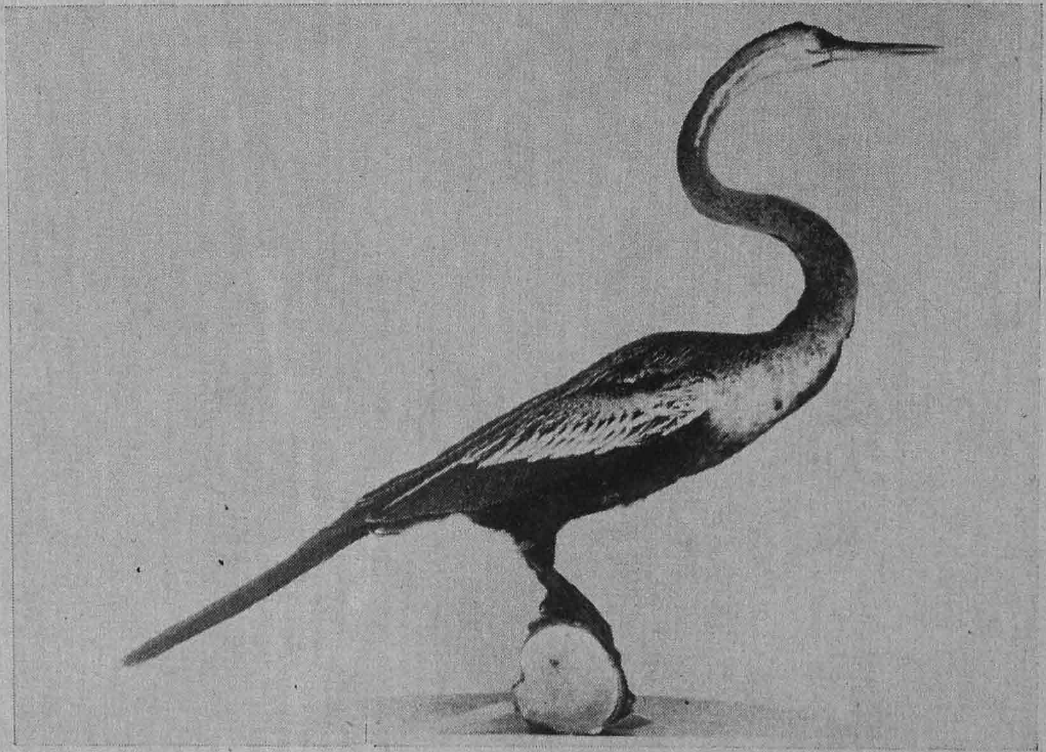


Fig. 91. Anhinga **rufa** melanogaster:
The Indian Darter or Snake Bird.

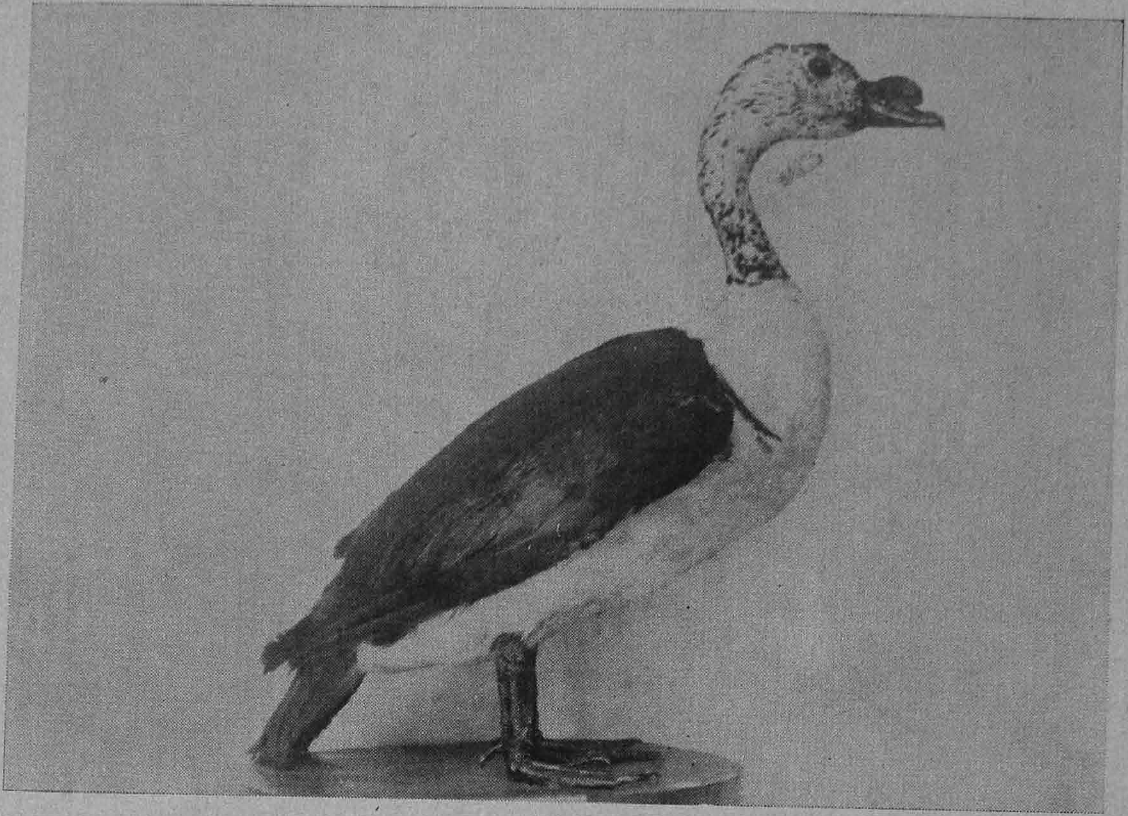


Fig. 92. Sarkidiornis melanotus melanotus: The Nukhta or Comb Duck.

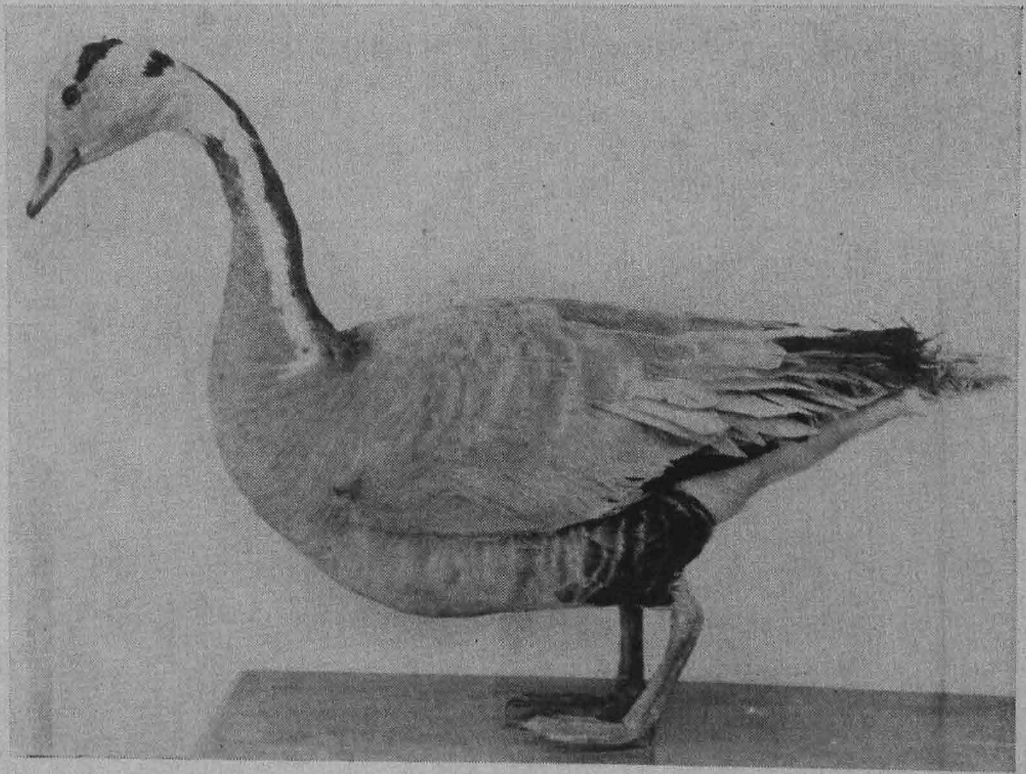


Fig. 93. Anser indicus:
The Bar-headed Goose.

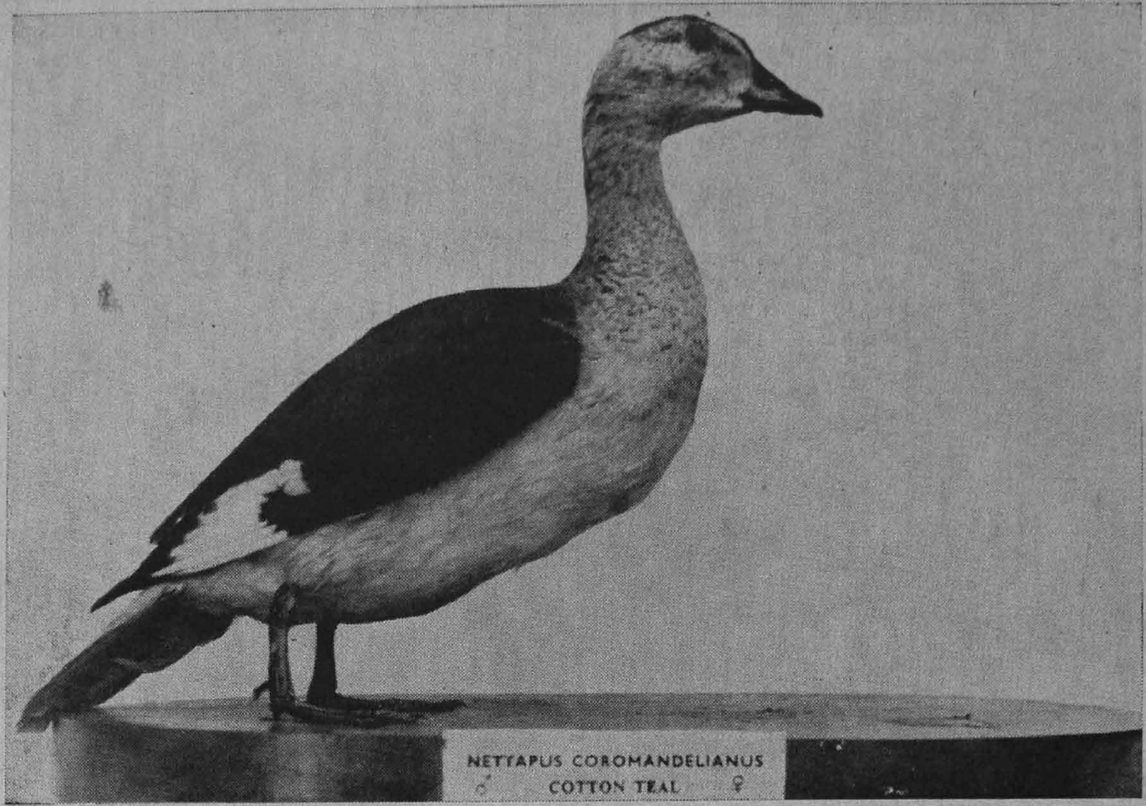


Fig. 94. Nettapus coromandelianus coromandelianus: The Cotton Teal.

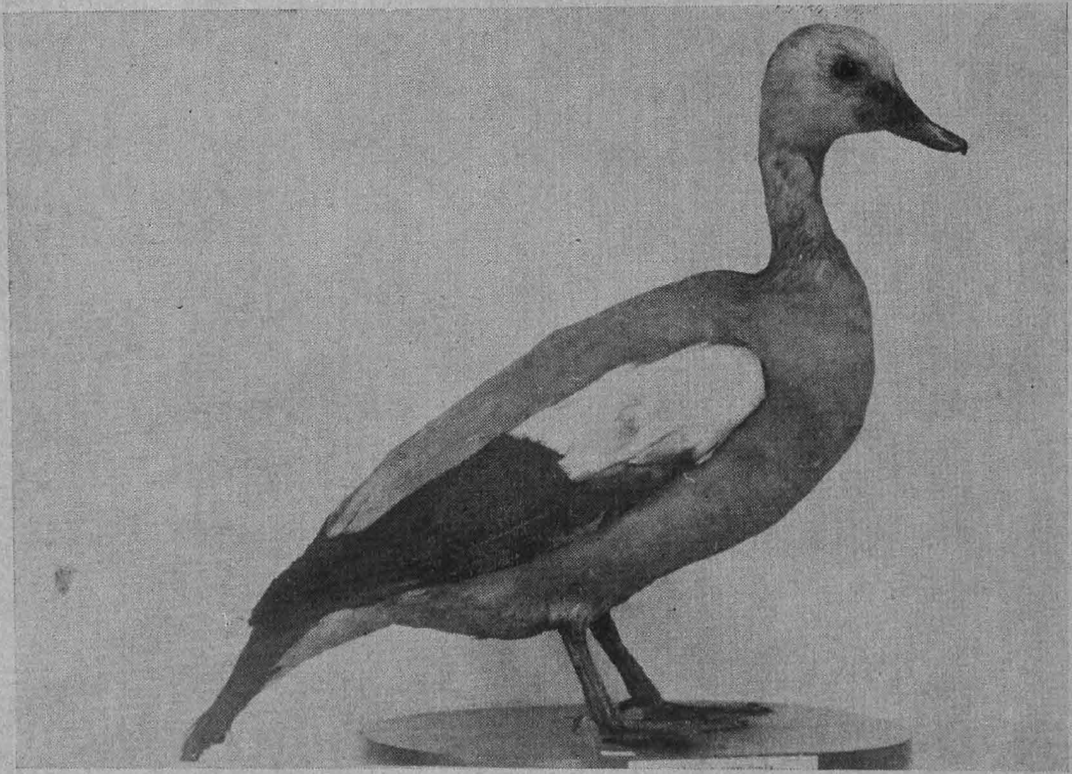


Fig. 95. Tadorna ferruginea:
The Ruddy Sheldrake or Brahminy Duck,

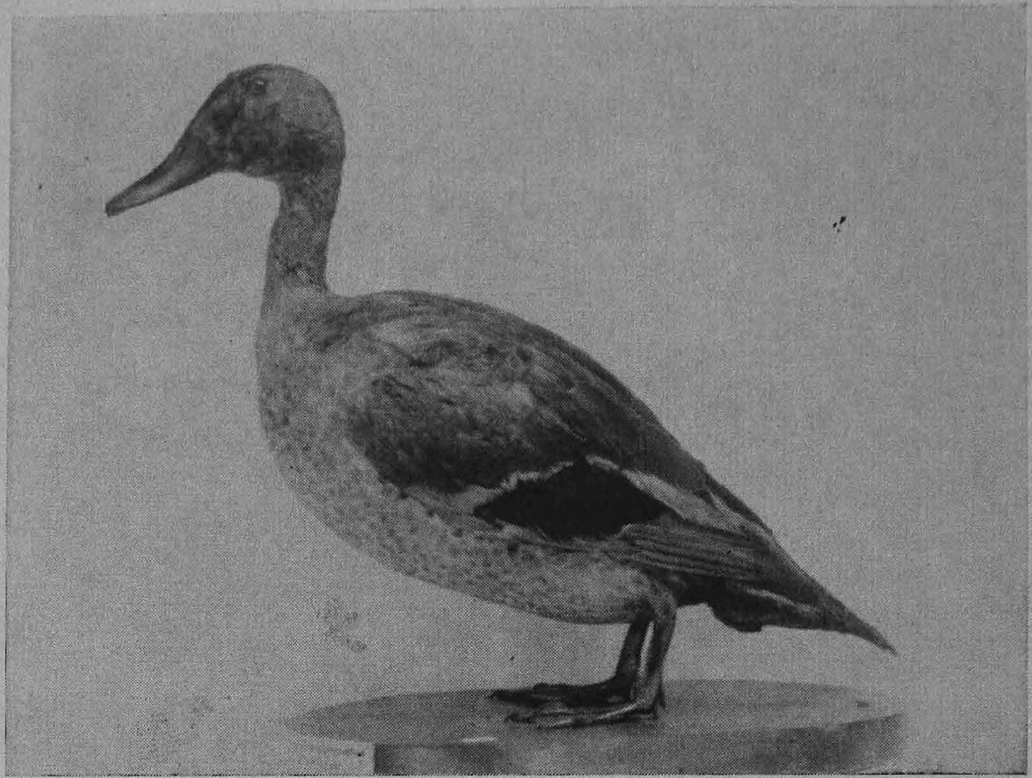


Fig. 96. *Anas poecilorhyncha poecilorhyncha*: The Spotbill or Grey Duck.

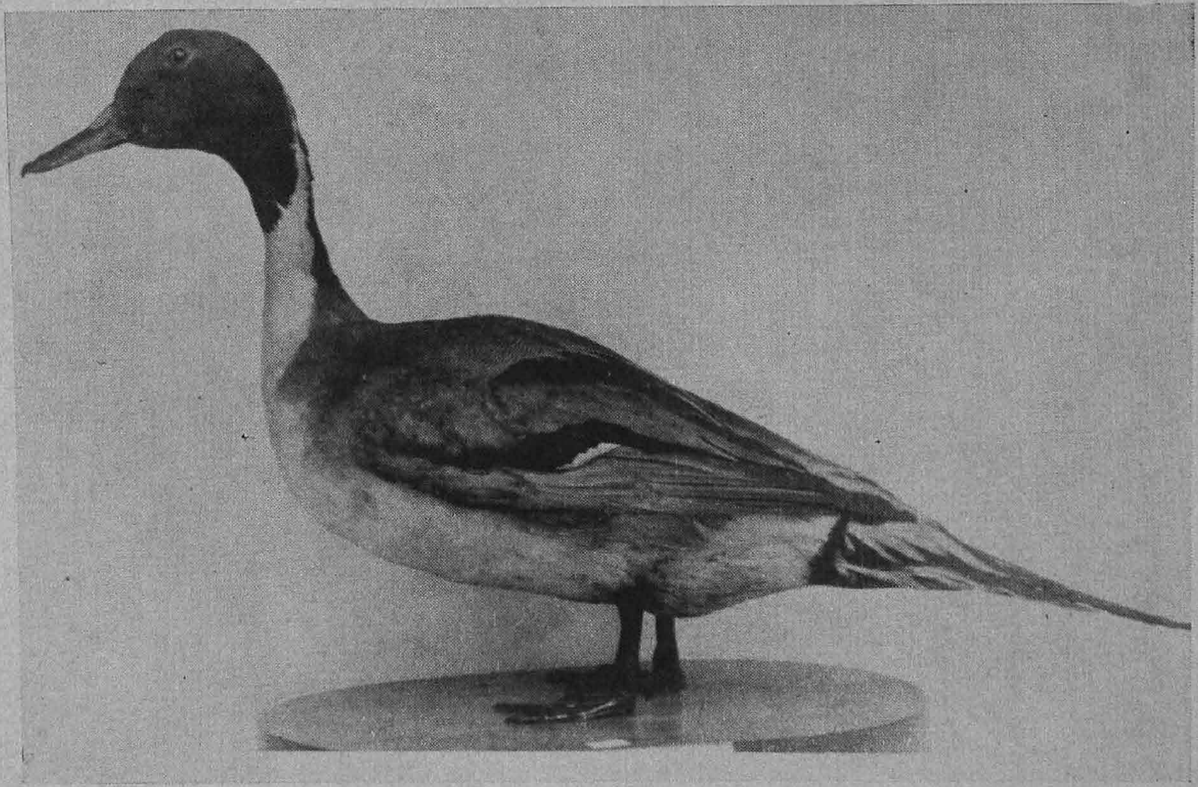


Fig. 97. *Anas acuta*:
The Pintail or the Pin-tailed Duck.

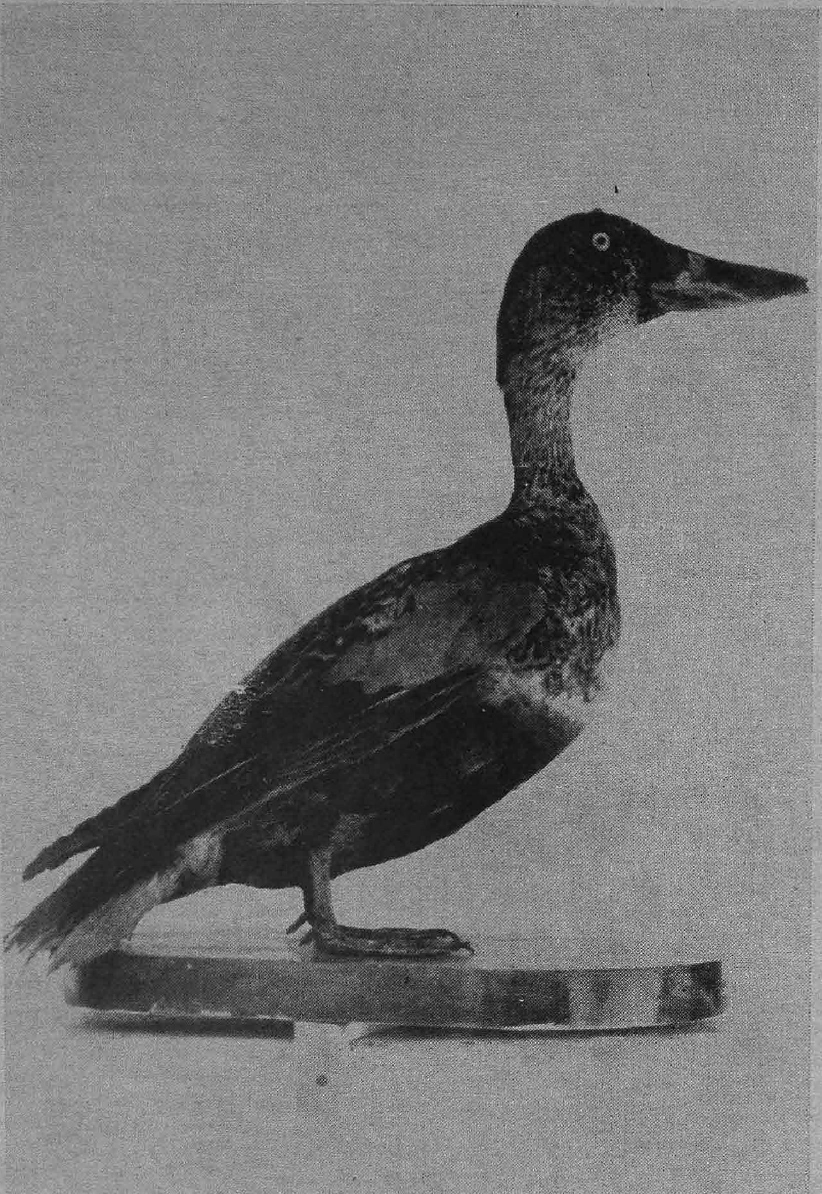


Fig. 98. Anas clypeata:
The Shoveller.

while the hind toe is small and placed higher on the leg than the front toes. The body is longish and boat-shaped and the wings are moderately long, but the tail is short. All of them have a dense coat of down feathers. Ducks and Geese mostly nest on the ground. All the Indian species of this Order belong to a single family, the Anatidae.

Family ANATIDAE

This family includes the Geese, Ducks and Swans. Of these, the Swans do not occur in South India and Ceylon, and the Geese and most of the species of wild Ducks occur only as winter visitors. The characters of this family are the same as those of the Order Anseriformes, described above. Specimens of most of the common species of Geese and Ducks occurring in South India are exhibited.

THE NUKHTA OR COMB DUCK

The Nukhta or Comb Duck (*Sarkidiornis melanotus melanotus*) is a large, goose-like Duck, glossy black above and white below, the head and neck being spotted. The male (drake) is distinguished from the female by the presence of a curious, fleshy comb near the base of the bill, which becomes greatly inflated during the breeding season. This is a resident species frequenting well wooded open country, being generally seen on tanks, lakes and ponds with plenty of floating vegetation. They keep in small flocks or family parties and can fly and swim well. They are expert divers and feed mainly on grain and shoots of rice, both wild and cultivated, but frogs, fish and water insects also form part of their diet. The breeding season is from June to September. A male and a female and an egg of this species are exhibited.

THE PINK-HEADED DUCK

The Pink-headed Duck (*Rhodonessa caryophyllacea*) is an extremely rare species and is now practically extinct, for there has been no record of this Duck for the last

thirty years. It inhabits the dense swampy jungles of the Duars and the Himalayan Terai from Nepal to Assam and the remote hinterland of the Darbhanga District of North Bihar. It was once a favourite game bird but has now been practically exterminated. The male is blackish brown above and below and has a partly tufted bright pink head and bill; the female is dull brown with the head tinged with bright pink. Of all the Indian species of wild Ducks, this the most shy and secretive. It feeds on both vegetable matter and aquatic animals such as crustaceans. Its flight is powerful. Besides an old specimen, a pair of fresher specimens from the Darbangha District of Bihar acquired from the late Mr. Inglis' collection are also represented in the collection.

THE BAR-HEADED GOOSE

The Bar-headed Goose (*Anser inidcus*) is a heavily built greyish brown and white bird with a long neck and short, rounded tail, and easily recognized from all other species of this family by the two dark bars on the back of the head. It is a winter visitor to India, arriving in October and leaving by March. These birds keep almost exclusively to wide rivers and large, open lakes, and are generally found in small parties of about fifteen to twenty birds. They spend the day resting on the sand banks of large rivers and become active in the evenings when they fly in wide, V-shaped or ribbon-shaped formations to their accustomed feeding grounds in cultivated fields or grassland. They feed mainly on young shoots of wheat or gram and keep feeding right through the night, thereby causing considerable damage to crops. In Southern India it occurs only sparingly. A single male specimen from Madras is exhibited.

THE COTTON TEAL

The Cotton Teal (*Nettapus coromandelianus coromandelianus*) is the smallest of our Indian resident Ducks. It is easily recognized by its small size and the predominance of white in its plumage. The male is dark glistening brown above with a white wing bar and a black collar while

the female is brown above and does not bear the wing bar and the collar. These Teals are very common throughout South India in winter months and are found wherever there is water overgrown with reeds and aquatic vegetation, being generally seen in small flocks of about five to fifteen birds. They can dive, swim and fly well. When not persecuted, they become very tame. They feed on shoots and grain of wild and cultivated rice as well as on insects, worms, small crabs, etc. They nest in natural hollows in tree trunks standing in or in the vicinity of water. Two male and three female specimens, all from near Madras, in both summer and winter plumage, are exhibited.

THE LESSER OR COMMON WHISTLING TEAL OR TREE DUCK

The Lesser or Common Whistling Teal or Tree Duck (*Dendrocygna javanica*) is one of the commonest and most well known of our resident species of Ducks. It is smaller than the domestic duck and is recognized by its dark chestnut brown plumage. These Teals are found in small flocks, frequenting tanks, streams and water-logged rice fields. They particularly prefer ponds which have plenty of trees growing around them. Their flight is slow and feeble and often accompanied by shrill, whistling notes. But they are strong and fast swimmers and they can also dive well. They feed on snails, worms, frogs, fish and young shoots of grass and rice, and nest in natural hollows in the trunks of trees. Two specimens from Madras and an egg of this species are exhibited.

THE LARGE WHISTLING TEAL

The Large Whistling Teal (*Dendrocygna bicolor*) is distinguished from the preceding species by its large size and by the upper tail coverts being white instead of chestnut, and is less common. In South India it appears to be a very rare visitor, although it is fairly common in Assam, Eastern Bengal and many other parts of Northern India.

They are more shy than the Lesser Whistling Teals and are often found well away from the precincts of villages. Their flight is stronger than that of the preceding species, but they are poor divers. Their whistling call is similar to that of the Lesser Whistling Teal, but louder and shriller. Their food and feeding habits are quite similar to those of the Lesser Whistling Teal. A single specimen is exhibited.

THE RUDDY SHELDRAKE OR BRAHMINY DUCK

The Ruddy Sheldrake or Brahminy Duck (*Tadorna ferruginea*) is a beautiful, large, orange-brown Duck with a paler head and neck and with the wings coloured white and black and glossy green. It is a widely distributed migratory species of wild Duck and is a common winter visitor to India arriving during October and November and returning again to their northern homes during March and April. It breeds during the summer months in Spain, Asia Minor and the Mediterranean countries and migrates south in winter when it occurs throughout India, but is rare in the extreme South of India. These Ducks are usually seen in pairs, but rarely also in small flocks on wide mud flats and sand banks of the larger rivers, feeding on seeds, grain and vegetable matter as well as on molluscs, small crabs, aquatic insects, fish and reptiles. They also feed on carrion at times. Their call is a loud, nasal, clanging note. An old female specimen collected in 1917 from Madras is exhibited, but a more recently acquired male specimen obtained from the Madras Zoo is also displayed in the Foreign birds Section in the new Natural History block, with a map showing its migratory routes.

THE SPOTBILL OR GREY DUCK

The Spotbill or Grey Duck (*Anas poecilorhyncha poecilorhyncha*) is one of the commonest and most widespread species of our Indian resident Ducks. It is about the size of the domestic duck and is readily recognized by its light and dark brown, scaly-patterned plumage and by the presence of a beautiful white and metallic green wing

bar. It is common in Central India and Manipur in Assam, but nowhere is it abundant. It is usually met with in pairs or small flocks on the lakes and larger tanks, jheels and swamps. It flies and swims well and feeds mainly on grain seeds and shoots but insects, molluscs, frogs, worms and crabs are also eaten. It is a favourite game bird and is considered excellent eating. Its nest, as in most wild Ducks, is a pad of grass and weeds placed among water weeds in marshes. A single male specimen from Madras is exhibited.

THE GADWALL

The Gadwall (*Anas strepera strepera*) is a rather large, dull coloured Duck, easily distinguished by the white wing bar (speculum), divided by a black bar from a patch of chestnut on the wing coverts. This is a widely distributed species being found throughout the Northern Hemisphere. It is a winter visitor to India found in immense flocks from Sind to Assam, but becoming progressively less abundant southwards. The arrive about the middle of October and leave again in April. They are usually found in flocks of about ten to thirty birds, frequenting marshes, tanks and rivers and are reputed to be among the finest of the game birds of the Duck family. Normally they do not dive. They feed largely on rice, but they also eat worms and larvae. They do not breed within Indian limits. Their flesh is said to be excellent for the table. Two male specimens from Madras are exhibited.

THE WIGEON

The Wigeon (*Anas penelope*) is also a winter visitor to India, arriving in large flocks late in October and leaving by the end of March. It is a large Duck, about the same size as the Gadwall, with the upper plumage in the male beautifully vermiculated black or blackish brown and white. The head is chestnut and the breast brownish pink. These birds breed during summer south of the Artic Circule and visit India in vast numbers in winter.

They are common in Sind and North Western India. They frequent marshes and shallow swamps and prefer feeding in shallow water overgrown with water weeds. They can fly and dive very well, although they seldom feed by diving. They feed on molluscs, crustaceans, insects and larvae as well as on young crops and water plants. Their flesh is said to be excellent for the table. Their call consists of a shrill, piping note or whistle. Two specimens from Madras are exhibited.

THE COMMON TEAL

The Common Teal (*Anas crecca crecca*) is another abundant winter visitor to India, being one of the earliest Ducks to arrive in India. Flocks are seen as early as the end of August, and by the middle of March most birds leave again. It is a very small Duck, distinguished from the other Indian species of wild Ducks by the conspicuous emerald green and black speculum or wing bar. The head is chestnut, and in the male there is a broad, metallic green band running backward from the eye. This is probably the commonest of our migratory Ducks, found practically throughout India, Ceylon and Burma in winter. They frequent water-logged paddy fields and marshland and feed mostly at night. Their food consists of shoots of young crops and water plants as well as molluscs, crustaceans and worms. Their flight is very swift and powerful. They are among the most favourite of our Indian game Ducks. A male and a female specimen from Madras are exhibited.

THE PINTAIL OR THE PIN-TALIED DUCK

The Pintail or the Pin-tailed Duck (*Anas acuta*) is a slender and graceful Duck with a long neck and long, pointed, pin-like feathers projecting beyond the tail. The male is distinguished by the brown head and the white line running down the sides of the neck. It is one of the commonest of the wild Ducks visiting India in winter. These Ducks arrive by the end of October and leave again in March. They are usually seen in pairs or in flocks ranging

from about twenty to several hundreds of birds frequenting large, open stretches of water with plenty of floating vegetation. They can swim and fly very well, but are not good as divers. They feed largely on water weeds and also on grubs, molluscs and crabs. They rank high as game birds and are considered excellent for the table. Two specimens—a male and a female—from Madras are exhibited.

THE GARGANEY OR BLUE-WINGED TEAL

The Garganey or Blue-winged Teal (*Anas querquedula*) is also a winter visitor to India and is one of the earliest Ducks to arrive in the North West of India. They arrive as early as the middle of September or even towards the end of August. The male is distinguished by its pinkish brown head, speckled with white and bluish grey patches on the wings and shoulders. In winter they occur throughout India and are generally found in large, closely aggregated flocks, frequenting large lakes and swamps as well as small ponds and tanks. Their flight is very fast. They feed mainly on young shoots of rice and wheat, thereby causing considerable damage to ripening crops. They resemble the Common Teal in their general habits. They are favourite sporting birds and are considered excellent for the table. Three specimens from Madras are exhibited.

THE SHOVELLER

The Shoveller (*Anas clypeata*) is another common winter visiting Duck migrating to India, but arrives late, by the end of October and returns by the end of April. It is distinguished by its rather broad, heavy, spatula-like beak. The head and neck in the male are glossy dark green, the breast white and the rest of the lower plumage mostly chestnut, while the female is mottled dark brown and white with the wings tinged greyish blue. These Ducks are found singly or in pairs or in small parties, frequenting dirty ponds, ditches, marshes as well as wide swamps

and lakes fringed with weeds where it feeds about the margins bestrewn with floating vegetation. Its peculiarly shaped, spatulate bill is specially adapted to feed in such localities as it acts as an effective sieve, straining off the food particles from the mud and dirt. It feeds on small crustaceans, larvae, frogs, mud fish, spawn, etc., as well as aquatic vegetation. It is not favoured as a game bird and its flesh is said to be rank and unsavoury. Two specimens, of which one is a male from Chingleput, are exhibited.

The last two genera in this family, namely, *Netta* and *Nyroca*, now renamed as *Aythya*, include the wild Ducks known as the Pochards and specimens of all the four species of Pochards occurring in India as winter visitors are exhibited in this Gallery.

THE RED-CRESTED POCHARD

The Red-crested Pochard (*Netta rufina*) is a winter visitor to India, arriving in large India as winter visitors the end of October and leaving again in March. There is marked difference in colour between the two sexes. In the male, the head and the fluffy crest on the crown are rich chestnut and golden orange, the lower plumage is black and the wing bears a conspicuous white, mirror-like patch, while the female is dull sooty brown above and largely whitish below. These birds are generally found on jheels and tanks overgrown with vegetation, feeding mainly on the roots and shoots of plants growing deep in water by diving, though they sometimes feed on surface vegetation like the Shoveller. However, they are omnivorous in their diet and also feed on insects, worms, larvae, etc. They can dive very well, and are extremely active in water, swimming and diving with great vigour. Two specimens—a male and a female—from Arkonam and Madras respectively, are exhibited.

THE POCHARD OR DUN BIRD

The Pochard or Dun Bird (*Aythya ferina*) is another winter visitor to India, arriving about the end of October

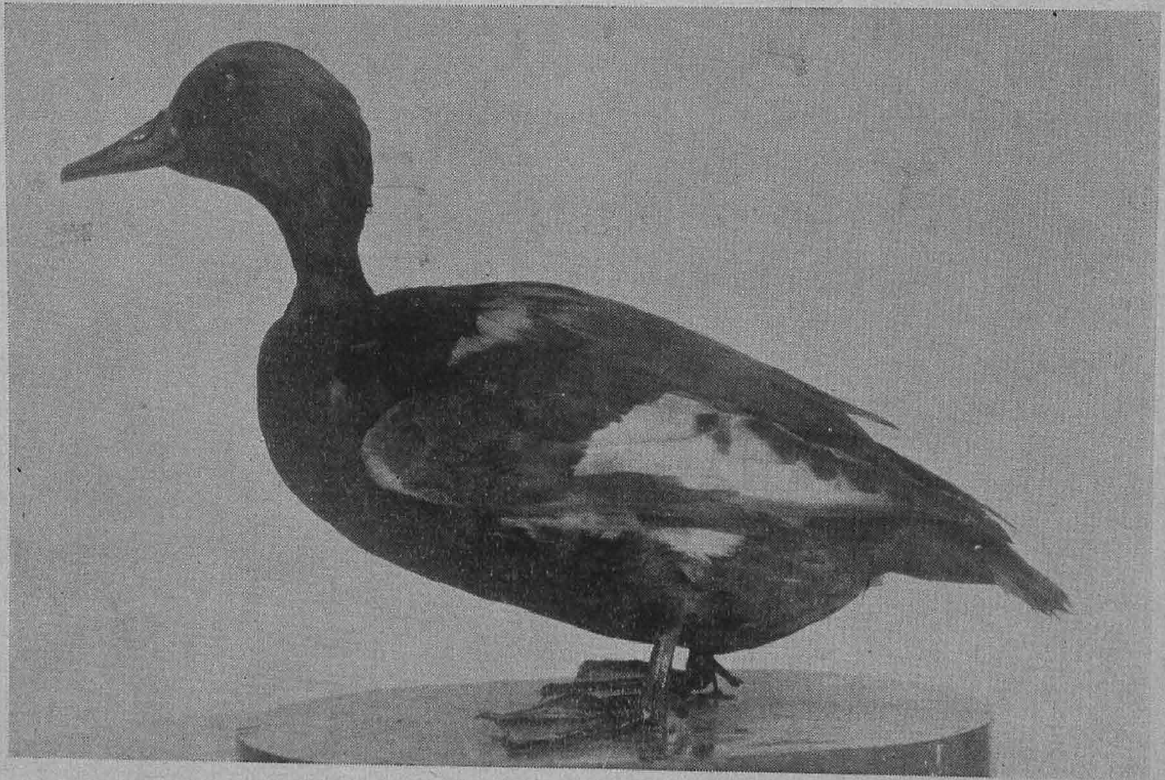


Fig. 99. Netta Rufina:
The Red-crested Pochard.

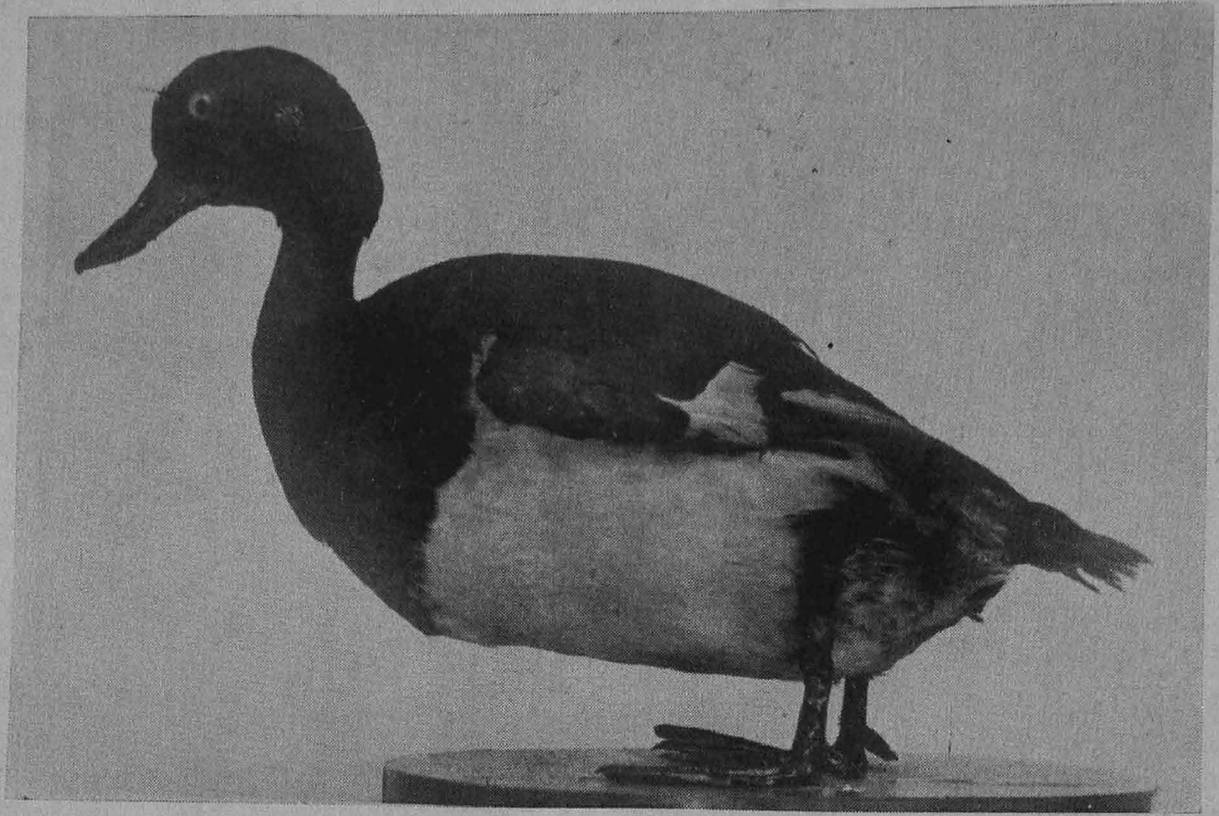


Fig. 100. *Aythya fuligula*:
The Tufted Pochard.

and leaving again about March. It is common in North India, but rare in Mysore and absent south of Mysore. It is a squat, heavily built Duck, the male of which is easily recognized by the bright chestnut head and the vermiculated grey plumage, leading sharply on to the black on the breast. The female is dull grey and brown with whitish throat and belly. These Ducks are found generally on large, open lakes and swamps with plenty of submerged aquatic vegetation. They are fine swimmers and divers and get most of their food which consists of the roots, shoots and buds of aquatic plants, by diving deep under water. They also feed on fish, frogs, molluscs and crustaceans. They feed mainly at night and rest during the greater part of the day. A male and a female specimen from Madras are exhibited.

THE WHITE-EYED POCHARD

The White-eyed Pochard (*Aythya nyroca*) is also a winter visitor to India, arriving about the end of October and leaving again in March. It is perhaps the commonest and most numerous of the migratory Ducks visiting India during winter. It is a small brown and blackish brown Duck with white under parts and a white bar across the wing. These Ducks are found wherever there is water with sufficient floating vegetation. They also frequent the sea coasts, and fly regularly inland at nights to feed on the water-logged paddy fields. They are expert divers and swimmers and even wounded birds are able to escape capture by diving. They feed on vegetable matter, seeds of aquatic plants, etc., as well as on insects, larvae, fish and molluscs. They are good sporting birds, but not palatable as table birds. Two female specimens from Madras are exhibited.

THE TUFTED POCHARD

The Tufted Pochard (*Aythya fuligula*) is a widely distributed species occurring throughout North Africa and Southern Asia during winter. The male is readily recognized by its striking black and white plumage and a tuft

on the crown while the female is brown and white and has no tuft. These birds occur in parties or small flocks along the sea coast as well as on inland lakes, swamps and reed-covered tanks. They prefer deep lakes with plenty of dense, marginal vegetation all round. In their feeding habits and powers of swimming and diving, they resemble the other species of Pochards closely. They are among the commonest of the migratory Ducks which have the habit of diving, and they usually feed in deep water on water weeds, molluscs, insects and crustaceans by diving. Two specimens, of which one is a male from Chingleput, are exhibited.

ORDER PODICIPEDIFORMES (= PYGOPODES)

This Order includes the Grebes. They are highly specialized for a purely aquatic life and are extremely adept at swimming and diving. They are distinguished by their front toes being furnished with broad, expanded lobes on either side. The body is duck-like but the bill is rather short and pointed and the legs are attached to the body very far back. This renders walking on land very difficult. These birds do not normally go ashore and spend all their time in water.

This Order includes only a single family, the Podicipedidae, comprising the Grebes.

Family PODICIPEDIDAE

The characters of the family are the same as those of the Order described above.

The Indian Little Grebe or Dabchick is the only species of this group that occurs in South India and is represented in this Gallery by a single specimen.

THE INDIAN LITTLE GREBE OR DABCHICK

The Indian Little Grebe or Dabchick (*Podiceps ruficollis capensis*) is a small, squat, tailless duck-like water

bird, with fine, ,silky white plumes on the under parts, and occurs throughout India, Burma and Ceylon, being commonly found in small parties of two or three birds in ponds, lakes and village tanks, but larger flocks are also often met with on wider stretches of water. They are expert divers and swimmers and often dive and disappear beneath the surface of the water as a means of escape, with amazing rapidity. They feed on aquatic insects, larvae, tadpoles, small crustaceans, etc., which are captured under water. They live almost entirely on water, seldom setting their feet on land, but they are able to fly well when once they take off, as, for instance, when they migrate locally from one pond to another. They make their nests of weeds and rushes and place them on floating vegetation. A single male specimen from Chingleput is exhibited.

APPENDIX I

Currently accepted Scientific names of Birds mentioned in this Guide book and their older (but more familiar) equivalents.

Page.	Current name, as mentioned in Dillon Ripley's "A Synopsis of the Birds of India and Pakistan" and adopted in this Guide.		Older Equivalent.
3.	Parus xanthogenys travancorensis	...	Machlolophus xanthogenys.
4.	Turdoides affinis affinis	...	Turdoides striatus or Turdoides griseus.
5.	„ striatus malabaricus	...	Turdoides terricolor malabaricus.
5.	„ caudatus	...	Argya caudata.
5.	„ malcomi	...	Argya malcomi.
5.	„ subrufus	...	Argya subrufa.
6.	Pomatorhinus schisticeps travancoreensis	...	Pomatorhinus horsfieldi travancoriensis.
6.	Dumetia hyperythra albogularis	...	Dumetia albigularis.
8.	Chloropis aurifrons frontalis	...	Chloropsis aurifrons davidsoni.
9.	Hypsipetes madagascariensis ganeesa	...	Microscelis psaroides ganeesa.
10.	„ indicus indicus	...	Iole icterica.
11.	Pyconotus melanicterus gularis	...	Pycnonotus gularis.
12.	Erithacus brunneus brunneus	...	Larvivora brunnea.
15.	Garrulax cachinnans	...	Trochalopteron cachinnans.
16.	„ jerdoni fairbanki	...	Trochalopteron jerdoni fairbanki.

Page.	Current name.	Older Equivalent.
16.	**Zoothera citrina** ...	Geocichla citrina.
16.	,, **wardii** ...	Geocichla wardi.
16.	**Monticola cinclorhynchus** ...	Monticola cinclorhyncha.
17.	,, **solitarius** ...	Monticola solitaria.
19.	**Muscicapa thalassina thalassina** ...	Stoparola melanops melanops.
19.	,, **albicaudata** ...	Stoparola albicaudata.
19.	,, **latirostris** ...	Alsenox latirostris poonensis.
20.	,, **nigrorufa** ...	Ochromela nigrorufa.
21.	**Monarcha azurea styani** ...	Hypothymis azurea sykesi.
21.	**Rhipidura albogularis albogularis** ...	Rhipidura pectoralis.
23.	**Hippolais caligata rama** ...	Hippolais rama.
23.	**Sylvia althaea althaea** ...	Sylvia curruca affinis.
24.	**Prinia gracilis** ...	Franklinia gracilis.
25.	**Prinia subflava inornata** ...	Prinia inornata inornata.
27.	**Tephrodornis pondicerianus pondicerianus** ...	Tephrodornis pondiceriana pondiceriana.
27.	,, **virgatus sylvicola** ...	Tephrodornis pelvica sylvicola.
28.	**Pericrocotus flammeus speciosus** ...	Pericrocotus speciosus flammeus.
28.	,, **cinnamomeus peregrinus** ...	Pericrocotus peregrinus peregrinus.
29.	**Coracina melanoptera sykesi** ...	Lalage sykesii.
29.	,, **novaehollandiae macei** ...	Graucalus macei macei.
30.	**Dicrurus adsimilis macrocercus** ...	Dicrurus macrocercus macrocercus.
31.	**Dicrurus aeneus aeneus** ...	Chaptia aenea malayensis.
32.	,, **hottentottus hottentottus** ...	Chibia hottentotta hottentotta.
32.	,, **paradiseus paradiseus** ...	Dissemurus paradiseus malabaricus.

Page.	Current name.		Older Equivalent.
35.	**Gracula religiosa indica**	...	Eulabes religiosa.
36.	**Sturnus roseus**	...	Pastor roseus.
37.	**„ pagodorum**	...	Temenuchus pagodorum.
38.	**Sturnus contra contra**	...	Sturnopastor capensis capensis.
39.	**Acridotheres fuscus fuscus**	...	Aethiospar fuscus fuscus.
43.	**Petronia xanthocollis xanthocollis**	...	Gymnornis xanthocollis xanthocollis.
44.	**Hirundo concolor concolor**	...	Ptyonoprogne concolor.
45.	**„ tahitica domicola**	...	Hirundo javanica domicola.
46.	**Motacilla alba dukhunensis**	...	Motacilla alba alba.
47.	**„ maderaspatensis**	...	Motacilla lugubris maderaspatensis.
47.	**„ caspica caspica**	...	Motacilla cinerea caspica.
48.	**„ indica**	...	Dendronanthus indicus.
48.	**Anthus novaeseelandiae rufulus**	...	Anthus richardi rufulus.
49.	**„ „ richardi**	...	Anthus richardi richardi.
51.	**Ammomanes phoenicurus phoenicurus**	...	Ammomanes phoenicura phoenicura.
51.	**Eremopteryx grisea**	...	Pyrrhulauda grisea.
53.	**Nectarinia zeylonica sola**	...	Leptocoma zeylonica
53.	**„ lotenia hindustanica**	...	Leptocoma lotenia
54.	**Arachnotherea longirostris longirostris**	...	Arachnotherea longirostra longirostra.
54.	**Dicaeum agile agile**	...	Piprisoma squalidum squalidum.
55.	**„ concolor concolor**	...	Dicaeum minullum concolor.
57.	**Picus xanthopygaeus**	...	Picus vittatus myrmecophaneus.

Page.	Current name.	Older Equivalent.
57.	**Dendrocopos mahrattensis mahrattensis** ...	Leiopicus mahrattensis mahrattensis.
58.	„ **nanus hardwickii** ...	Yungipicus hardwickii hardwickii.
58.	**Micropternus brachyura jerdonii** ...	Micropternus brachyura gularis.
59.	**Dinopium benghalense benghalense** ...	Brachypternus benghalensis benghalensis.
59.	**Chrysocolaptes lucidus guttacristatus** ...	Chrysocolaptes guttacristatus guttacristatus.
59.	**Hemicircus canente canente** ...	Hemicircus canente cordatus.
60.	**Picumnus innominatus malayorum** ...	Picumnus innominatus avunculorum.
60.	**Jynx torquilla torquilla** ...	Iynx torquilla torquilla.
61.	**Megalaima haemacephala indica** ...	Xantholaema haemacephala lutea.
61.	„ **rubricapilla malabarica** ...	Xantholaema malabarica.
61.	„ **zeylanica zeylanica** ...	Thereiceryx zeylanicus zeylanicus.
62.	„ **viridis** ...	Thereiceryx viridis.
63.	**Coracias benghalensis indica** ...	Coracias benghalensis indicus.
63.	**Eurystomus orientalis laetior** ...	Eurystomus orientalis orientalis.
64.	**Merops philippinus philippinus** ...	Merops superciliosus javanicus.
65.	„ **leschenaulti leschenaulti** ...	Melittophagus erythrocephalus erythrocephalus.
65.	**Nyctyornis athertoni athertoni** ...	Bucia athertoni.
67.	**Pelargopsis capensis capensis** ...	Ramphalcyon capensis gurial.
68.	**Halcyon coromanda coromanda** ...	Entomotherea coromanda coromanda.

Page.	Current name.		Older Equivalent.
69.	Buceros bicornis homrai	...	Dichoceros bicornis bicornis.
69.	Tockus birostris	...	Lophoceros birostris.
70.	,, grieseus grieseus	...	Lophoceros grieseus grieseus.
71.	Upupa epops ceylonensis	...	Upupa epops orientalis.
73.	Cypsiurus parvus batasiensis	...	Tachornis batasiensis batasiensis.
73.	Chaetura gigantea indica	...	Hirundapus giganteus indicus.
74.	Collocalia fusiphaga unicolor	...	Collocalia unicolor unicolor
77.	Harpactes fasciatus malabaricus	...	Pyrotrogon fasciatus malabaricus.
78.	Cuculus canorus canorus	...	Cuculus canorus telephonus.
79.	,, varius varius	...	Hierococcyx varius.
79.	Cacomantis merulinus passerinus	...	Cacomantis merulinus merulinus.
80.	,, sonneratii sonneratii	...	Penthoceryx sonneratii sonneratti.
87.	Loriculus vernalis rubropygialis	...	Coryllis vernalis rubropygialis
89.	Tyto alba stertens	...	Tyto alba javanica.
90.	Strix leptogrammica indranee	...	Strix indranee indranee.
90.	Bubo zeylonensis zeylonensis	...	Ketupa zeylonensis zeylonensis.
95.	Torgos calvus	...	Sarcogyps calvus.
98.	Falco peregrinus japonensis	...	Falco peregrinus calidus.
100.	,, vespertinus amurensis	...	Erythropus amurensis.
100.	,, tinnunculus	...	Cerchneis tinnunculus.
103.	Spilornis cheela melanotis	...	Spilornis cheela albidus.
109.	Accipiter gentilis schvedowi	...	Astur gentilis gentilis.
109.	,, trivirgatus paninsulae	...	Astur trivirgatus trivirgatus.
109.	,, badius dussumieri	...	Astur badius dussumieri.

Page.	Current name.		Older Equivalent.
112.	Aviceda leuphotes leuphotes	...	Baza leuphotes leuphotes.
113.	Gallus gallus murghi	...	Gallus bankvia murghi.
114.	Lophura leucomelana leucomelana	...	Gennaeus leucomelanus.
115.	Coturnix chinensis chinensis	...	Excalfactoria chinensis.
117.	Perdicula argoondah argoondah	...	Perdicula asiatica argoondah.
117.	,, erythrorhyncha erythrorhyncha	...	Cryptoplectron erythrorhynchum erythrorhynchum.
119.	Turnix suscitator taigoor	...	Turnix suscitator taijoor.
120.	Treron phoenicoptera chlorigastar	...	Crocopus phoenicopterus chlorogaster.
121.	,, pompadora affinis	...	Dendrphassa pompadora affinis.
122.	Ducula aenea sylvatica	...	Muscadivora aenea sylvatica.
125.	Streptopelia orientalis meena	...	Streptopelia orientalis ferrago.
126.	,, tranquebarica tranquebarica	...	Oenopopelia tranquebarica tranquebarica.
130.	Rallina eurizonoides amauroptera	...	Rallina superciliaris superciliaris.
131.	Gallinula chloropus indica	...	Gallinula chloropus indicus.
132.	Porphyrio porphyrio poliocephalus	...	Porphyrio poliocephalus poliocephalus.
139.	Esacus magnirostris recurvirostris	...	Esacus recurvirostris.
141.	Glareola pratincola maldivarum	...	Glareola maldivarum maldivarum.
145.	Chlidonias hybrida indica	...	Chlidonias leucopareia indica.
146.	Sterna bergii velox	...	Thalasseus bergii edwardsi.
146.	,, bengalensis bengalensis	...	Thalasseus bengalensis bengalensis.
150.	,, fuscata nubilosa	...	Sterna fuscata infuscata.

Page.	Current name.	Older Equivalent.
151.	**Pluvialis squatarola** ...	Squatarola squatarola hypomelana.
152.	**Charadrius alexandrinus alexandrinus** ...	Leucopolius alexandrinus alexandrinus.
153.	„ **leschenaulti leschenaulti** ...	Çirripedesmus leschenaulti.
154.	**Pluvialis dominica fulva** ...	Pluvialis dominicus fulvus.
154.	**Vanellus gregarius** ...	Chettusia gregaria.
154.	„ **spinosus duvaucelii** ...	Hoplopterus ventralis.
155.	„ **indicus indicus** ...	Lobivanellus indicus indicus.
155.	„ **malabaricus** ...	Lobipluvia malabarica.
156.	**Recurvirostra avosetta** ...	Recurvirostra avocetta avocetta.
158.	**Tringa terek** ...	Xenus cinereus cinereus.
161.	„ **nebularia** ...	Glottis nebularia.
162.	**Calidris albus** ...	Crocethia alba.
163.	„ **minutus** ...	Erolia minuta minuta.
163.	„ **temminckii** ...	Erolia temminckii.
163.	„ **acuminatus** ...	Erolia acuminata.
164.	„ **testaceus** ...	Erolia testacea.
164.	**Phalaropus lobatus** ...	Lobipes lobatus.
168.	**Capella minima** ...	Lymnocryptes minima.
171.	**Egretta gularis schistacea** ..	Demigretta asha.
175.	**Ciconia episcopus episcopus** ...	Dissoura episcopa episcopa.
178.	**Threskiornis melanocephala** ...	Threskiornis melanocephalus.
178.	**Pseudibis papillosa papillosa** ...	Pseudibis papillosus.
180.	**Phoenicopterus roseus** ...	Phoenicopterus ruber roseus.
184.	**Anhinga rufa melanogaster** ...	Anhinga melanogaster.
185.	**Sarkidiornis melanotos melanotos** ...	Sarkidiornis melanotus.

Page	Current name.	Older Equivalent.
187.	Dendrocygna bicolor	... Dendrocygna fulva.
188.	Tadorna ferruginea	... Casarca ferruginea.
189.	Anas strepera strepera	... Chaulelasmus streperus.
189.	,, penelope	... Mareca penelope.
190.	,, crecca crecca	... Nettion crecca crecca.
190.	,, acuta	... Dafila acuta acuta.
191.	,, querquedula	... Querquedula querquedula.
191.	,, clypeata	... Spatula clypeata
192.	Aythya ferina	... Nyroca ferina ferina.
193.	Aythya nyroca	... Nyroca rufa rufa.
193.	,, fuligula	... Nyroca fuligula fuligula.

APPENDIX II

Tamil Names of Common Indian Birds

(*Note* :—The names given are not in all cases accurate ; any corrections or additions will be welcome).

Adjutant Stork	... நாரை முகப்புள்
Babbler, Jungle	... கள்ளிக்குருவி, தவிட்டுக்குருவி, பன்னிக்குருவி
- Spotted	... சருகுண்ணிக்குருவி
Barbet	... குக்குறுவான்
Bee-Eater	... பஞ்சுருட்டான், பஞ்சுவெட்டான்
Bittern	... குறுகை
Blackbird	... சோலைப்பாடி, மலைச்சிட்டான்
Blue Bird	... பணக்காரக் குருவி
Bulbul, Red-Vented	... கொண்டைக் குருவி
- White-Browed	... மஞ்சட் கொண்டைக் குருவி
Bustard	... வரகுக்கோழி
Chat	... கல்லுக்குருவி
Chloropsis	— பச்சிலைக்குருவி, பச்சைகுருவி
Coppersmith	... குக்குறுவான்
Cormorant	... நீர் காக்கை
Crow, Common House	... மணிக்காக்கை, வீட்டுக்காக்கை, மணியன்காக்கை
- Jungle	... அண்டங்காக்கை. கருங்காக்கை
- Pheasant or Coucal	... செம்போத்து, செண்பகம்
Cuckoo, Crested	... சுடலைக்குருவி, கொண்டைக் குயில்
Curlew (Whimbrel)	... கோட்டான்
Darter or Snake Bird	... பாம்புத்தாரா, நெய்காக்கை
Dove, Brown	... தவிட்டுப்புறா
- Ring	... சாம்பற்புறா
- Spotted	... மணிப்புறா
- Turtle	... கரும்புறா
Drongo, Black	... கரிச்சான்
- Racket-Tailed	... கொண்டைக்கரிச்சான், வாற் நீட்டை கரிச்சான்

Duck, Comb-or Nukta ... மூக்கன் வாத்து
Eagle ... பருந்து, பராந்து
- Crested ... கொண்டையன்
- Pallas's or Ring Tailed Fishing ... ஆலா
- Serpent ... பாம்புப் பருந்து
Egret ... வெள்ளைக்கொக்கு, உண்ணிக் கொக்கு
Falcon ... இராசாளி, வல்லூறு
Flamingo ... பவளக்கால் நாரை, பூநாரை
Florican ... வரகுக் கோழி
Flowerpecker ... நுண்ணிச்சிரை
Flycatcher, Fantail ... விசிறிக் குருவி
- Paradise ... வாற்குருவி, வாற் கொண்டை லாத்தி
Fowl, Jungle ... காட்டுக் கோழி
- Painted Spur ... கற் கோழி
- Red Spur ... சருகுக் கோழி
Goose ... பெரும்தாரா, வாத்து
Gracle ... நையாண்டிக் குருவி, மலை நாகணம் பட்சி
Grebe ... முக்குளிப்பான்
Gull ... பொந்தர், கடற்காக்கை
Harrier ... பூனைப்பருந்து
Hawk ... வல்லூறு, கீச்சான்
Heron, Grey ... சாம்பனாரை, நாராயணப்பட்சி
- Green ... தோஷிக் கொக்கு
- Night ... வாக்கு, வக்கா
- Pond ... குருட்டுக் கொக்கு, மடையான்
Hoopoe ... கொண்டைலாத்தி
Hornbill ... இருவாய்க் குருவி
Ibis, White ... கங்கணம்
Iora ... மாம்பழச்சிட்டு
Jacana ... தாமரைக் கோழி
Kingfisher ... மீன் கொத்தி
Kite, Brahminy ... செம்பருந்து, கருடன்
- Common ... கரும் பருந்து
Koel ... குயில்
Lapwing ... ஆட்காட்டி
Lark ... வானம்பாடி

Loriquet	... கன்னிக்கிளி
Minivet	... பொற்குருவி
Munia	... தினைக்குருவி
Myna, Brahminy or Black Headed	... பாப்பாத்தி நாகணவாய்
- **Common**	... நாகணவாய்
- **Jungle**	... காட்டு நாகணவாய்
Nightjar	... பக்கி, பக்கு
Nuthatch	... பசையெடுக்கிற குருவி
Open-Bill	... நத்தைக்குத்தி நாரை
Oriole	... மஞ்சட் கொழுப்பன்
Owl, Eagle	... ஊமன்
- **Indian Great Horned**	... கூகை
Owlet	... ஆந்தை
Parakeet, Rose-Ringed	... பச்சைக்கிளி
Partridge	... கவுதாரி
Peafowl, Common	... மயில்
Pelican	... கூழைக்கடா
Pie	... வாற்காக்கை
Pigeon, Bronze-winged	... பாதுகைப்புறா
- **Green**	... பச்சைப்புறா
- **Imperial**	... பெரும்புறா
- **Rock**	... மாடப்புறா
- **Wood**	... கானற்புறா
Pipit	... புற்குருவி
Pitta	... ஆறுமணிக்குருவி, காஸ்காட்டி, பஞ்சவர்ணக்குருவி
Plover	... உப்புக்கொத்தி
Quail	... காடை
- **Bustard**	... குறுங்காடை
- **Button**	... மணிக்காடை
Rail	... நீர்க்கோழி, பொய்யாப்புள், சம்புங்கோழி
Robin, Magpie	... வண்ணாத்திக் குருவி, பாற்காரிக் குருவி
Roller or Blue Jay	... பாற்குருவி, பனங்காக்கை
Sandgrouse	... கற்கவுதாரி
Sandpiper	... உள்ளான், கல்லுப்பொறுக்கி
Shearwater	... மசகிற்புள்
Sheldrake	... செங்கிளுவை, சிறகி

Shortwing	குருஞ்செட்டைக் குருவி
Shoveller	ஆண்டிவாத்து, சிறகி
Shrike	கீச்சாங் குருவி
Skimmer	கடலுராய்ஞ்சி
Snipe, Fantail	மோருள்ளான்
- **Jack**	கோரையுள்ளான்
- **Painted**	மயிலுள்ளான்
- **Pintail**	கீரியுள்ளான்
- **Wood**	காட்டுள்ளான்
Sparrow	ஊர்க்குருவி
Spoonbill	துடுப்பு நாரை
Stilt	பவளக்கொத்தி
Stint	சிற்றுள்ளான்
Stork	நாரை
Sunbird	பூஞ்சிட்டு, தேன்சிட்டு
Swallow	தகைவிலான் சிட்டு
Swift	உழவார்க்குருவி
Teal	கண்ணாடிக்கிளுவை, சிறகி
- **Cotton**	தாமரைச்சிறகி
- **Blue-winged or Garganey**	வாலாஞ்சிறகி
- **Whistling**	கீச்சுக்கிளுவை, சிறகி
Tailor-Bird	தையற்சிட்டு
Tern	கடற்குருவி, முகதுவாரக்குருவி, கடற்புள்
Thrush, Laughing	பூங்குருவி
Tit	தோட்டத்திருடி
Trogon	வண்டுக்குத்தி
Wagtail	கோட்டைக்கிரிச்சான், வண்ணாத்திக்குருவி, வாலாட்டி
Warbler	கொசுக் கட்டை
Weaver-Bird	தூக்கணாங்குருவி
White-Eye	கண்ணாடிக்குருவி
Woodcock	தடிமூக்குள்ளான்
Wood Pecker	மரங்கொத்தி